Aalto University
School of Engineering

Irena Bakić

How can we use design thinking as a vehicle for adolescent empowerment

– Results from UNICEF project

This thesis submitted for examination for the degree of Master of Science in Technology

Helsinki 23.05.2016

Supervisor: Professor Olli Varis

Advisor: Ville Taajamaa, M.ScTech

Aalto University
School of Engineering

Aalto University, P.O. BOX 11000, 00076 AALTO
www.aalto.fi

Abstract of master's thesis

Author Irena Bakić

Title of thesis How can we use design thinking as a vehicle for adolescent empowerment – Results from UNICEF project

Degree programme Degree Programme in Forest Products Technology

Major/minor Sustainable Development **Code** P9002

Thesis supervisor Professor Olli Varis

Thesis advisor(s) Ville Taajamaa (M.Sc)

Date 23.05.2016 **Number of pages** 7+90 **Language** English

Abstract

The inspiration and motivation for this research came from the interactions with children, adolescent and youth in Uganda during Aalto University's Product Development Project (PDP) course for UNICEF and from my internship with the UNICEF Innovation Unit in New York. The approach during the PDP course was to keep the children and youth in the center of the product development process. The children, youth and other stakeholders were participating in the design process from identifying the challenges, ideating solutions, prototyping and testing the prototypes. During my internship, I started this research and the development of the Youth Led Innovation program to help the local educators organize similar activities to PDP by themselves.

The research questions for this study were:
RQ1. How can we use Design Thinking to empower marginalized adolescent?
RQ2. How does participation in design program contribute to adolescents' skills and ability to respond to the challenges they face in their reality?

The main result of this research is the Youth Led Innovation program which was developed in New York and Finland and tested in Finland and Uganda between 2013 and 2016. The literature review and analysis of the program was conducted in Finland in 2015 and 2016. The study also also utilizes the established theories on design thinking. It is based on empirical evidence that was gained through working closely with children, adolescent and youth in Uganda in 2012-2015. Thus the strength of the Youth Led Innovation program is the connection to the real world. The results also indicate that the design thinking methods which are generally used successfully by the universities and leading global design agencies can provide meaningful learning opportunities for marginalized youth and provides them skills to tackle local problems and create solutions to them in collaboration with their peers. One of the main weaknesses of this study is the fact that the Youth Led Innovation program has been tested but not been piloted fully.

Suggestions for future research include measuring the impact of the program, such as empowerment, development of problem-solving, team working and communications skills, gaining confidence in one's abilities, acquiring skills, gaining recognition, and improved self-esteem and self-efficacy.

Keywords Adolescent development, design thinking, empowerment theory, experiential learning

Aalto-yliopisto
Insinööritieteiden
korkeakoulu

Aalto-yliopisto, PL 11000, 00076 AALTO
www.aalto.fi

Diplomityön tiivistelmä

Tekijä Irena Bakić

Työn nimi Miten muotoiluajattelua voidaan käyttää syrjäytyneiden nuorten voimaannuttamisen keinona – Tulokset UNICEF -projektista

Koulutusohjelma Puunjalostustekniikan koulutusohjelma

Pää-/sivuaine Kestävä kehitys **Koodi** P9002

Työn valvoja Professori Olli Varis

Työn ohjaaja(t) Kirjoita tekstiä napsauttamalla tätä.

Päivämäärä 23.05.2016 **Sivumäärä** 7+90 **Kieli** Englanti

Tiivistelmä

Inspiraatio ja motivaatio tähän tutkimukseen syntyi vuorovaikuksesta lasten ja nuorten kanssa Ugandassa Aalto-yliopiston Product Development Project (PDP) -kurssin UNICEF projektin ja työharjoittelujakson aikana UNICEF:n innovaatioyksikössä New Yorkissa. PDP kurssin lähestymistapa tuotekehitykseen sisälsi lasten ja nuorten mukaan ottamista. Lapset, nuoret ja muut sidosryhmät olivat mukana suunnitteluprosessissa ongelman tunnistamisessa, ideointivaiheessa, prototyyppien rakentamisessa ja testauksessa. Tämän diplomityön ja Youth Led Innovation -ohjelman kehittäminen alkoi työharjoittelun aikana. Nuorten ohjelman tavoitteena on auttaa paikallisia opettajia järjestämään PDP-kurssin tapaista toimintaa itsenäisesti.

Tutkimuskysymykset tässä diplomityössä olivat:
1. Miten muotoiluajattelua voidaan käyttää syrjäytyneiden nuorten voimaannuttamisen keinona?
2. Miten osallistuminen nuorten muotoiluohjelmaan edistää nuorten taitoja ja kykyä vastata nuoren omiin haasteisiin?

Tutkimuksen tärkein tulos on Youth Led Innovation -ohjelma, jota on kehitetty New Yorkissa ja Suomessa ja testattu Suomessa ja Ugandassa vuosina 2012-2016. Kirjallisuuskatsaus ja analyysi toteutettiin Suomessa vuosina 2015 ja 2016. Tutkimus hyödyntää myös vakiintuneita teorioita suunnitteluajattelusta ja voimaantumisesta. Tutkimuksen empiirinen näyttö saavutettiin tekemällä tiivistä yhteistyötä lasten ja nuorten kanssa Ugandassa vuosina 2012-2015. Tutkimuksen vahvuus on Youth Led Innovation –ohjelman yhteys todelliseen maailmaan. Tulokset osoittavat myös, että muotoiluajattelumenetelmät, joita on menestyksekkäästi käytetty yliopistojen ja maailman johtavien muotoilutoimistojen toimesta, voivat tarjota mielekkäitä oppimismahdollisuuksia syrjäytyneille nuorille ja antaa heille taitoja paikallisten ongelmien ratkaisemiseen. Tutkimuksen yksi heikkous on se, että Youth Led Innovation -ohjelmaa ei ole toteutettu kokonaisuudessaan.

Ehdotukset tulevaisuuden tutkimukseen sisältää ohjelman vaikutusten arviointi. Ohjelman mahdollisia vaikutuksia ovat muun muassa voimaantuminen, onglmaratkaisu-, ryhmätyö- ja viestintätaitojen kehittyminen, itseluottamuksen, minäpystyvyyden positiivinen kehittyminen.

Avainsanat Muotoiluajattelu, voimaantumisteoria, kokemuksellinen oppiminen

Acknowledgements

This thesis has been a long journey both in time and distance. This topic was probably the third one I had developed but it was one question that made me realize that this is it! My colleague from the UNICEF Innovation Unit asked me, what I really cared about and what I wanted to spend six months working with? In a split second I answered – Youth and adolescent. It took five periods of six months, moving back to Finland and traveling twice to Uganda to this moment, when I'm writing the acknowledgements in this document.

All in all, doing this thesis has been an amazing experience and probably one of the best learning experiences ever, after all this is my master's thesis. Since the goal of the Youth Led Innovation program is to provide new learning experiences to the marginalized youth, I hope that the participants in the workshops have also gained new skills and knowledge.

First of all, I would like to thank all the workshop participants in Uganda who were the real teachers. Betty, from Gulu War Affected Training Centre and all her lovely students; Cleopatra from Uganda Scouts Associations and Shaban from UNICEF Uganda who helped me to connect with youth organizations in Gulu and Kampala and Felix Mwebe who has been the voice of wisdom and my right hand countless times in Uganda. Secondly, I would like to thank my instructor Olli Varis for allowing me to write this thesis, even though this is not the most "engineer like" thesis topic. And special thanks to my supervisor Ville Taajamaa for being patient with my process and especially for your enthusiasm that helped me to carry on when I was getting lost. Also, I would like to bow to the whole Aalto University Design Factory community; Professor Kalevi Ekman for trusting my work and supporting the development of my expertise; Andrew Clutterbuck, for seeing my potential and nurturing it - you have been the best coach ever; all the ADF researchers, Tua, Senni, Miko, Samuli, Maria, Stefania; and the rest of the community, Kari, Vesku, Pirjo, Tiina, Viltsu, Päivi, Annina, Martti, Tiki, Sonia, George, Lisa , Joel, Lisa and Nicole. In addition, I would like to thank UNICEF Innovation Unit, UNICEF Uganda and UNICEF Finland for the great opportunity to work with the greatest innovators in this field.

Last but not least, I want to thank my family for their love and support: äiti, tata, Kristina, Mariina, Lazare, Jean-Michel, Maja i baba. My roommates, thank you for your support and laughter.

In Espoo, 19.5.2016
Irena Bakić

Table of Contents

Acronyms

ADAP	Adolescent Development and Participation
ADF	Aalto University Design Factory
AGI	Aalto Global Impact
CoPs	Communities of Practice
ELT	Experiential Learning Theory
HCD	Human-Centered Design toolkit
IDBM	International Design Business Management
PDP	Product Development Project
UNICEF	United Nation’s Children’s Fund
WASH	Water Sanitation and Hygiene

1 Introduction

1.1 Background and Motivation

Background of the UNICEF – Academia collaboration with Aalto University

For nearly five years, the Finnish Committee for UNICEF (UNICEF Finland) has been collaborating with Aalto University in Finland, Makerere University in Uganda, and the UNICEF country office in Uganda. The aim of the partnership is to develop sustainable, Human Rights Based innovations for children in the context of rural schools in Uganda. The focus of the innovations has been within the Water, Sanitation, and Hygiene (WASH) sector.

The birth of the collaboration came about in 2010 when Christopher Fabian, the co-lead of the UNICEF Innovation Unit and the current senior advisor of innovation, at UNICEF headquarters in New York visited Aalto University Design Factory. Aalto University Design Factory (ADF) is a collaborative environment for students, staff, researchers, and business partners and other partners interested in practical applications of problem-based learning philosophy and hands-on activities that support theoretical studies (ADF, 2016). While ADF is seeking for "mission impossible problems" for student teams to tackle, UNICEF is working with the most pressing challenges of the most world's most vulnerable and marginalized groups, children, mothers and youth. The purpose of the collaboration between UNICEF, academia and the private sector has been to co-create new ways to serve the most marginalized groups in the world, more specifically in northern Uganda.

During Christopher Fabian's visit to ADF, he got introduced to Andrew Clutterbuck, who started to lead the collaboration from Aalto University's side. I got introduced to Andrew a few months after the collaboration had started. At that time, I was working with a Finnish-Ugandan start-up and was soon moving to Uganda to do an internship with the company. Right after finishing my internship I was employed by ADF and stayed in Uganda to join the initial planning phase first as a collaboration coordinator.

In June 201,1 Andrew Clutterbuck, along with Miriam Azar, UNICEF Finland's representative for the collaboration and Ashkan Shabnavard, an Aalto University student undertook a trip to Uganda. The purpose of this trip was to find the scope for the UNICEF academia collaboration, to experience UNICEF's work in Uganda and to get to know the staff at the UNICEF Innovation Unit and UNICEF Uganda. Two Aalto University courses were selected for this collaboration: Product Development Project (PDP), which is an interdisciplinary product development course and International Design Business Management (IDBM) Industry Project which is also an interdisciplinary course but focuses on developing new business values and models.

Picture 1 visit to UNICEF Uganda with representatives from UNICEF Finland and Aalto University, 2011

Due to my connections at Makerere University we were able to engage with the local university already during the first academic year of the collaboration. The idea behind involving Makerere as a partner was to integrate the local Ugandan students with the Aalto students to create context appropriate innovations that fit the local culture. Having Makerere students as part of the project was also a way to increase the interdisciplinary nature of the PDP and IDBM courses and an approach that was planned to increase the sustainability of

the inventions created during the courses. The Makerere students would be integrated into the Aalto University team as remote team members.

Student project work 2011-2012

From September 2011 to May 2012 students from the two programs in Aalto University (PDP and IDBM Industry Project) carried out the project. There were four students from the Makerere University from the College of Engineering, Design, Art and Technology: one student from the mechanical engineering, civil engineering, fine art and industrial design departments and a medical student from the faculty of health science.

Through the academic year my role was to act as a student project manager for the PDP course and as an Aalto-UNICEF collaboration coordinator as a member of the ADF staff. My main roles at that time included being the contact point with project related communication with UNICEF Uganda and being a contact point to Makerere University. I also organized travels between Finland and Uganda and facilitated the fieldwork in Uganda.

During the academic year, the Aalto students conducted two field trips to Uganda: first one during the autumn term and the second one during the spring term. The Ugandan students visited Finland in January, and one of them participated the PDP gala in April 2012.

The scope of the field trips to Uganda was to understand the context and the reality where the "customer", the children live in: what are the social connections in the children's life, what are the educational institutions like, what are the school premises like, who are the people in responsible for the child's wellbeing and what are their daily routines and routes. To understand how the other stakeholders influence the child's life, we needed to understand what power relations the community has concerning children: school, health care institutions, parents, the village parent-teacher association, faith-based organizations. Understand these influencers in the child's life, meant that we could better understand what factors influenced the children's behavior, beliefs, opinions and thoughts.

Picture 2 Primary School student's visual map of their community

One important part of the research was to figure out what had been done in Uganda and the WASH field up to the point of the project – what has worked, what projects had failed and the learning's from both. The proverb our team used a lot during the project was "good intentions gone wrong". We saw numerous projects that had failed or even made the situation worse. For example, in one of the schools, World Food Program had planted Eucalyptus trees next to the school to provide firewood for preparing meals for the school. Eucalyptus trees require a lot of water and the tree plantations resulted in a lack of water in the school's borehole during the dry season. Another example of a widely known failure was the One Laptop Per Child, which failed to keep their promises both to the receivers and donators. (Keating, 2009)

Guiding principles of the student project work

The work of the student groups was guided by principles that were created by the students and partly by UNICEF. In general, guiding principles provided a clearer space for innovating and creativity. As Teresa Amabile suggests in her article "How to kill creativity"

in Harvard Business review (Amabile, 1998), if the target keeps moving and goals constantly change, it is extremely difficult to work creatively. Hence clearly specified strategies usually enhances people's creativity.

The goal of the project was to improve water, sanitation and hygiene in schools in Acholi land, Uganda, and the guiding principles were the considered as the specified strategies to reach those goals.

The principles created by the students were:

- Design with the users
- African solutions for African problems
- Possible to manufacture locally
- Culturally appropriate
- Scalable
- Sustainable
- Applying human-centered design principles
- Not re-inventing the wheel

Since the collaboration was in tight connection with UNICEF's global innovation work, their framework for innovation was also applied. The UNICEF Principles for Innovation and Technology in Development (UNICEF, 2015) are:

.

- Design with the user
- Understand existing ecosystem
- Design for scale
- Build for sustainability
- Be data driven
- Use open standards, open data, open source and open innovation
- Reuse and improve
- Do no harm
- Be collaborative

Development of appropriate methods

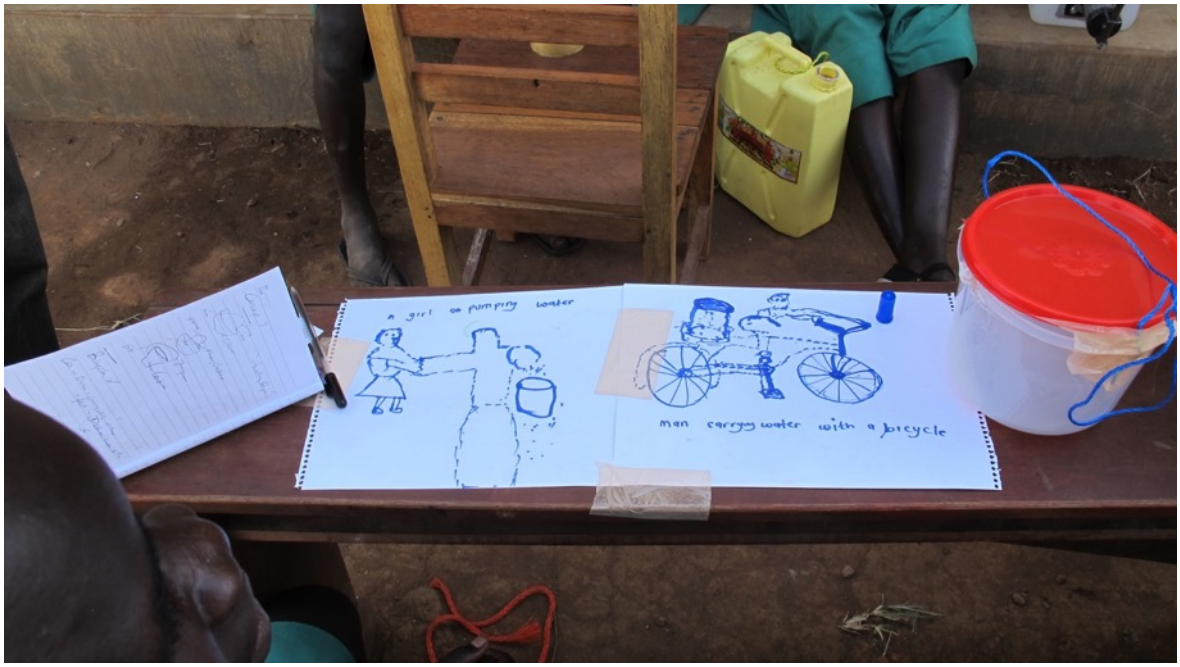
The methods used during the field trips were developed with both experts and as a desk study. The PDP and IDBM course staff and Design Factory network provided the teams with connections from which the student teams chose which to reach out to. One of the most meaningful contacts was Esteve Pannetier, a human factor specialist. Before coming to Finland, Esteve worked at IDEO, which is one of the world's most well-known design companies.

During the first field trip the student teams conducted individual interviews and focus group interviews. The teams tried to participate as much as possible in the school activities. These activities included taking part in the learners' daily chores from cleaning the toilets, cutting grass, and fetching water from the borehole. The teams also organized workshops to understand the children's world through drawing exercises, storytelling and community walks. Observing daily activities, complemented the interviews, as what people say doesn't always match with how they act. For example, the teachers say that everyone washes hands but, didn't always even wash their own hands after visiting the toilet.

Picture 3 visual communication exercise related to water transportation

By the time of the second field trip the teams had developed concepts and prototypes in Finland and Uganda. The second field trip concentrated to testing the concepts and prototypes, as well as engaging the children and local manufacturers in developing the ideas further.

I also organized two co-creation workshops in two different primary schools in Gulu. The participants were divided into teams and given one hour to create ways to transport water in an alternative way. Normally the children carry 10- or 20-liter jerry cans on the top of their heads or in their hands. The participants were divided into teams and given 1 hour to create ways to transport water in an alternative way. Normally the children carry 10- or 20-liter jerry cans on the top of their heads or in their hands. A third co-creation workshop was organized in Kamwokya, Kampala with youth in collaboration with Treasure Life Youth Centre.



Picture 4 Drawings and a prototype from the first co-creation workshop in Gulu

Learnings from the first co-creation workshops

After the workshops held after during the second trip to Gulu, I had the feeling that the co-creation workshops had not succeeded- they seemed to have failed as attempts to support the

participants to create new solutions to their problems. Especially the younger participants were observing what the other teams did and then copied their ideas. I also observed that when the teachers were around, the learners would expect guidance or criticism from them. The participants came up with solutions to the given challenge, but at the same time, I felt that there was much more to discover. Before the next trip to Uganda I sat down with Esteve Pannetier and discussed the learnings from the first co-creation workshop. The main learnings were:

- the participants had the tendency to think that there is one right answer instead of multiple right ones
- the children are not used to used to activities similar to this
- there needs to be much more warming up and creativity exercises
- all the participants were from the same age group and might have lack of self-confidence to work independently and create their own ideas
- the given tasks and exercises should be shorter, smaller and more focused.

AGI summer implementation project June- August 2012

After the PDP and IDBM projects were finished, I and Andrew Clutterbuck started to prepare for the Aalto Global Impact summer implementation project. Aalto Global Impact is a unit at Aalto University which promotes and facilitates research and educational programs for societal impact globally (AGI, 2016). The goal of the summer project was to continue developing the existing ideas further with the users and to pilot test some of the products the students had developed during the academic year. We managed to cover funding for six students from Aalto and four Ugandan students to work for six weeks to three months.

Building on the experiences

While preparing for the summer project, I met again with Esteve Pannetier and started to develop a new plan for the co-creation workshops by building on the lessons learned from the earlier workshops. The main goal was to get the participants to work in a collaborative manner, include different age groups in the teams, facilitate them to create new ideas and to create a program that would be divided into three parts taking place on different

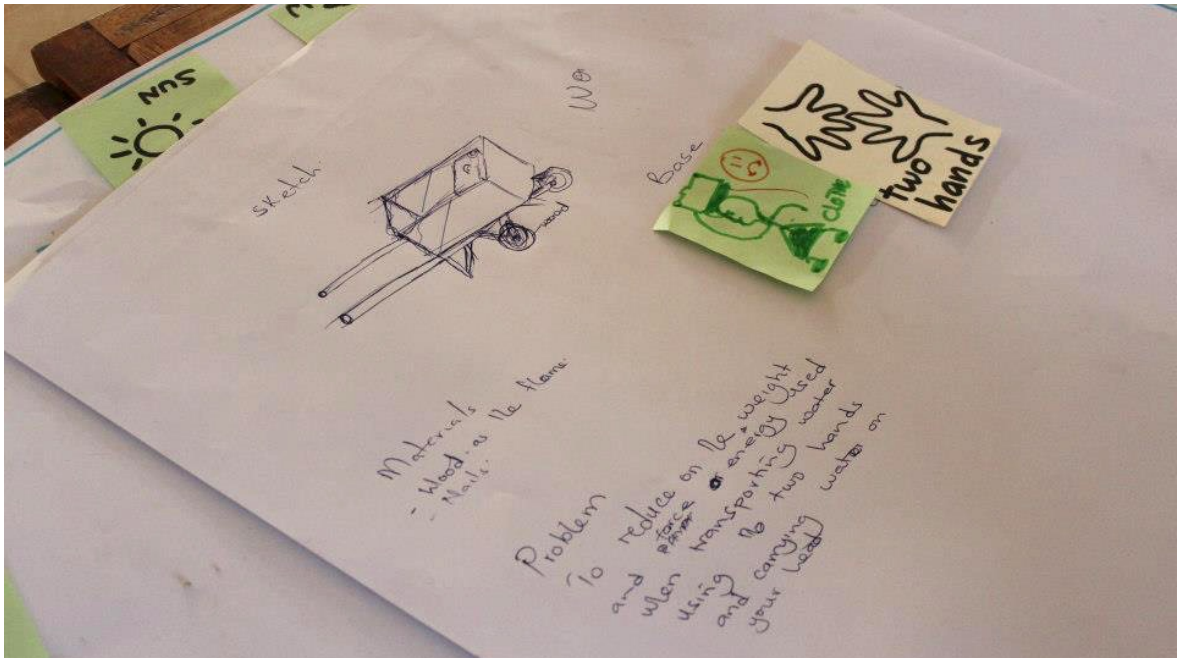
days. Different roles for different age groups were also identified. The younger students were selected to be the "context experts" since the PDP co-creation workshops in February 2012 has shown that the younger students had difficulties in carrying out creative work in teams by themselves. The youth in the Treasure Life Youth Centre were more capable of taking initiative on problem-solving through product development. Younger learners also respect the older students, so it was natural that the older students were driving the teamwork. Although the primary school students were not attending all the workshop sessions, they could see how their briefing and sharing experiences resulted in new solutions could improve their lives and the lives of their peers.

Youth Creative Competition - a three-day workshop organized in Gulu, June 2012

Picture 5 Blackboard from the Youth Creative Competition in Daniel Comboni Vocational Institue in Gulu

The Youth Creative Competition gathered youth from Layibi P7 Primary School, Pope John Paul II, and St. Joseph´s Secondary schools and Daniel Comboni Vocational Institute. During the 3-day workshop the participants were divided into teams that included members from all schools.

The teams used rapid prototyping, product development and close loop design methods to create a product out of local resources to ease the task of water transportation. The method emphasized the youth being the problem solvers in their own community by using their own knowledge and expertise, but more importantly their soft skills and teamwork skills.



Picture 6 Sketch and problem definition from the Youth Creative Competition

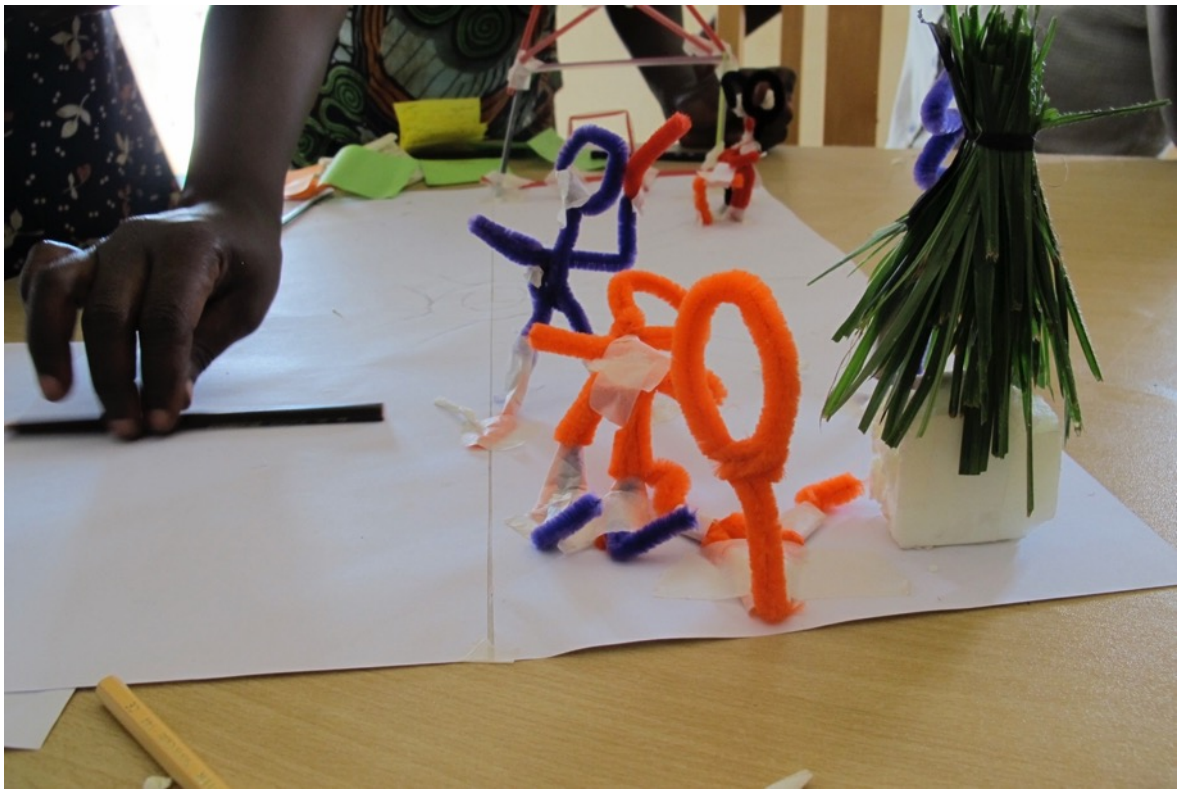
Youth Creative Competition outcomes

The Youth Creative Competition resulted with four prototypes which were evaluated by the participants and teachers from the participating schools. The feedback regarded the estimated performance and functionality of the prototypes, feasibility, and viability.

Picture 7 Final prototypes from the Youth Creative Competition

The teams were noticeably capable of learning new methods and "think out of the box" techniques with the help of mentors who each had one designated team to coach. The concept of a prototype was hard to comprehend even for the teachers. Concerning the prototypes, most of the feedback consisted of questions around the functionality of the prototypes, since they were seen products rather than ideas. Nevertheless, the participants showed great enthusiasm and willingness to try new ways of looking at their own context. They were active in mapping out the reasons behind the issues they faced in their daily lives and also learned about sustainability and business through the closed-loop design method exercise.

The most inspiring part of the Youth Creative Competition was the excitement of the participants. There seemed to be so much untapped potential and unreleased creativity within these young people and personally, it was an eye opening experience to witness what the teams were capable of creating together with a little facilitation from my team.



Picture 8 Creative prototype for a service at Youth Led Innovation workshop at the Gulu War Affected Training Centre

The workshop was an entirely new way of working in comparison with the ordinary school work. Based on my observations in Ugandan schools, the class sizes are too large to arrange teamwork. According to the World Bank (World Bank, 2016) Uganda's pupil to teacher ratio is among the highest in Sub-Saharan Africa, making the teaching environment notably challenging. In many of the primary schools, there were around 100 students per class and only one teacher. Personally, I don't think there is any other way to teach in these circumstances than lecturing and learning by heart.

From inspiration to idea

Although the ideas coming from the participants were great, the process was the most important achievement. Seeing the different age groups working together in a very collaborative manner made me believe there is a lot of untapped energy and potential in these young Ugandans. Based on the teachers' positive feedback, they shared the same view with me. I also came into a conclusion that my team was not needed in Uganda to execute these workshops. If the educators had the right materials designed and made for them, they could organize similar activities by themselves.

The seed of an idea of creating a design toolkit for the Ugandan teachers and youth workers was planted during the Youth Creative Competition workshop, but it took me more than a year to take the idea into action.

Internship in UNICEF Innovation Unit in New York 2013-2014

I started my internship at the UNICEF Innovation Unit in New York in August 2013. Upon my arrival, I did not have a particular project or assignment I was recruited to do. My tasks were to be decided during the first weeks of my internship. On my first day, I was asked to join a meeting with the UNICEF adolescent development and participation unit (ADAP). The team had been working on the adolescent in emergencies- toolkit for few years and my supervisor Christopher Fabian proposed that I would create a simpler, more action driven version that would focus on helping adolescent become the re-builders of their future societies. The visual brief that I got from him was a paper tissue that he made into a ball, threw it to the table and opened it. That was communicating how easy it was supposed to work - deliver it to any location and use it right away. Sort of a "plug and play" model.

My first thoughts were in finding more information about refugee camps and figuring out what exactly are the needs there. It was clear that there was a lack of many necessities and the diversity of needs was really wide. There was no one particular thing that could be taught to the adolescent to re-build their future societies. Solving one out of one hundred challenges would still leave 99 problems yet to be addressed. Instead of addressing one specific challenge, I decided to focus on skills development since I came the conclusion that that was the only way to give tools for young people to re-build their future societies and to tackle challenges on other domains as well.

The idea for this Master's thesis and the Youth Led Innovation program were born during my internship with the UNICEF Innovation Unit in New York. In the beginning, they were two separate projects but soon after I returned to Finland, started to write this study the two got integrated into one project.

1.2 Research questions

My work with UNICEF and academia in Uganda, Finland and New York led me to realize how much untapped potential and unreleased creative power there is within young people, especially adolescent. I also found out how little resources and support is provided for them to tackle the challenges they face in their communities related to their development from childhood to adulthood. I also discovered the lack of appropriate tools for teachers and youth organizations for youth empowerment and for providing them with skills to reach their full potential and for building a better future themselves.

The obtained experience of design thinking based methods used in co-creation workshops and the knowledge that they are also successfully used by universities and design agencies are the reasons why design thinking was chosen for this study and as a method for the Youth Led Innovation program.

Based on the experience from the projects and the following literature review, in this Master's thesis I intend to answer the following research questions:

RQ1. How can we use Design Thinking to empower marginalized adolescent?
RQ2. How does participation in design program contribute to adolescents' skills and ability to respond to the challenges they face in their reality?

2 Background

The story of the Youth Led Innovation program originates from Gulu, Uganda where I realized that young people are not given many opportunities to be full participants in their own communities. I also saw the untapped potential of young people and sensed the enormous amount of creativity that was yet to be unleashed. I identified a need for locally organized activities where young people would be given the chance to tackle the challenges they felt of high importance and learn skills that would help them to create solutions with creative approaches collectively.

I studied all the best toolkits and practices that could be used to organize before-mentioned activities. These toolkits included Human Centered Design toolkit by IDEO, collective action toolkit by Frog Design and Stanford University's d.school, but realized that none of them fitted the need I had identified. Therefore, I started to develop Youth Led Innovation toolkit.

In this chapter, I will introduce the theoretical background for this study and present the related design toolkits to this study.

2.1 Literature review

This section introduces the theoretical framework used in this research. First, the theories related to learning are reviewed. Both this study and the Youth Led Innovation program are exploring how experiential learning can provide a learning process that is connected to the real world and how the dialogue between the learner and the surrounding world can facilitate experiences where the learner touches all the processes related to learning - experiencing, reflecting, thinking and acting. Since the obtained experiences in Uganda suggest that learning takes place in groups and through social interactions, the theories related to learning also include aspects of social learning and communities of practice.

The second part of this section introduces the population of this study. Theories related to adolescent development are introduced through the adolescent development point of view.

The third part of the literature review presents empowerment theory, the components for psychological empowerment and Albert Bandura's self-efficacy theory. The fourth part of this section introduces a model of adolescent empowerment by Mathew Chinman and Jean Ann Linney. The adolescent empowerment model combines theories from the previous sections of adolescent development and psychological empowerment.

The fifth section introduces the concept of design thinking and outlines the different discourses in literature and common elements of design thinking. The last part of the literature review expresses how participatory design process tools are used as an enabling process for the development of psychological empowerment.

2.1.1 Experiential learning

Experiential Learning Theory (ELT) was presented by John Dewey in the early 20th century. His books "Experience in Education" and "How to Think" are still regarded as the base for the experiential learning approach (Taajamaa, 2016). ELT emphasizes that experience has an essential role in the learning process. It defines that learning is a process where knowledge is created through the transformation of experiences (D. A. Kolb, Boyatzis, & Mainemelis, 2000).

In his book Dewey (1938) discusses the traditional school and the progressive school. As the traditional school, he describes the social institutions which are " sharply marked off from any other form of social organization" such as homes (Dewey, 1938). Unlike the traditional schools Dewey doesn't see education as something fixed or static, and where adult standards, subject matter and methods are imposed to others for whom these schemes are beyond the reach of their experiences. Even though Dewey (1938) identifies the need for a new learning theory, he doesn't consider these two schools to be opposing each other but as contributing to each other. (Taajamaa, 2016).

Experiential Learning Theory is built on six propositions that are shared by Dewey and other contributors to the theory (A. Y. Kolb & Kolb, 2005):

1. “Learning is best conceived as a process, not in terms of outcomes” (A. Y. Kolb & Kolb, 2005). Learners need to be engaged in a learning process that includes a continuous feedback loop.
2. “All learning is relearning” (A. Y. Kolb & Kolb, 2005). Learning process is best facilitated by a process that draws out the learners’ beliefs and ideas about concerning topics that they can examine, test and integrate with new ideas.
3. Learning is driven by conflicts, disagreements, and differences. Learners are ought to be moving back and forth between reflection, action, feeling and thinking.
4. Learning is not an isolated process from the surrounding world. It is a process that incorporates adaptation of the whole world. Learning demands the holistic integration of the learner – thinking, feeling, behaving and perceiving.
5. Learning is a result of a dialogue between the learner and the environment. It is a process that accommodates and embraces new thoughts and experiences into existing concepts and structures and vice versa.
6. “Learning is a process of creating knowledge” (A. Y. Kolb & Kolb, 2005). Experiential learning theory is based on the constructivist theory of learning which suggests that knowledge is created in social processes and is created and recreated in the learner’s personal knowledge.

As mentioned earlier, in ELT knowledge is created through the transformation of experience (A. Y. Kolb & Kolb, 2005). ELT includes two dimensions of learning that are in continuous interaction with each other. The first dimension is related to grasping experience, which comprises of *Concrete Experience* and *Abstract Conceptualization.* The second dimension of transforming experience includes *Reflective Observation* and *Active Experimentation*. Experiential learning is a process that can be portrayed as a learning cycle where the learner touches all the processes related to learning - experiencing, reflecting, thinking and acting. (A. Y. Kolb & Kolb, 2005).

2.1.2 Social learning systems and Communities of Practice

The ideas about social learning systems in the twentieth century were influenced by behaviorist approaches around learning through imitation, observation, and reinforcement

through reward or punishment. Later on, the notion of learning moved away of the idea of a linear process, towards the idea that learning relied on people's interaction with each other. (Blackmore, 2010)

Contributors in the social learning system discourse such as Richard Bawden, Etienne Wenger, Donald Schön and Sir Geoffrey Vickers consider the process of learning as a system and as a social phenomenon. They explore the actual and potential interconnections among people and their environments through different levels ranging from individuals to groups, organizational to institutional and local to global (Blackmore, 2010).

Etienne Wenger and his colleagues have been significant contributors to the Social Learning Systems and Communities of Practice (CoPs) approach (Blackmore, 2010). Wenger (2000) suggests that learning is a fundamentally social phenomenon, which is reflecting our social nature as human beings capable of knowing. In this section, I will describe Social Learning Systems and CoPs through Wenger's (2000) article "Communities of Practice and Social Learning Systems."

In this article, Wenger explores the structure of social learning systems and looks at the constitutive elements of these systems. Wenger outlines two aspects for understanding social learning systems: *social competence* and *personal experience.* The second aspect of his conceptual framework are the three different modes of *belonging* through which we participate in social learning systems. These modes are *engagement*, *imagination,* and *alignment.* The third element of Wenger's framework are the three structuring elements which are *communities of practice*, *boundary processes* within those communities and *identities* which are shaped by participation in the social learning systems.

Wenger defines learning as an interplay between social competence and personal experience. Here social competence is defined historically and socially. For example, how to be a teacher or how to educate is something that scientific communities and society have established over time. If the teacher changes the school or goes to an overseas conference and meets a "stranger" with completely different experience, the teacher then may have an experience that opens his or her eyes to a new way of looking at the world. Wenger explains that when

social competence and personal experience are in tension and either starts pulling the other, learning takes place.

According to Wenger, participating in social learning systems comes through belonging. It can take various forms from local interactions to global participation. Wenger separates belonging into three modes. *Engagement* requires opportunities for joint activities. Learning happens through different ways of engaging with each other and with the surrounding world. Through engagement, we learn what we can do and how the surrounding world responds to our actions. *Imagination* is about building an image of ourselves, of our communities and the surrounding world. Through this imagination an individual can orient oneself, reflect their situation and explore possibilities. For example, as a member of a community, we are able to construct an image of the nation without engaging with all the members of the society. These kinds of images of the world are essential to the interpretation of one's participation in the social world. *Alignment allows* local activities to be adjusted with other processes. In this way, the local activities can be effective beyond the local engagement. Alignment here is a mutual process of coordinating perspectives and actions towards reaching higher goals.

The structuring elements of the social learning systems are communities of practice, boundary processes, and identities. *Communities of practice* are the building blocks of social learning systems. Wenger combines three elements to define the competencies in the communities of practice. The first one is *enterprises* which are a collectively defined understanding of what the community is about. The second one is *mutuality* of the established norms and relationships developed through the interactions of the community. The third one is the shared *repertoires* such as language, stories or stories which are shared and produced by the communities of practice.

The second structuring element is the boundaries which connect communities and offer learning opportunities. Learning inevitably takes place inside the community but particularly in the boundaries, competence and experience tend to diverge through exposure to the prior experiences with different competences.

The third element of the social learning systems is *identities.* Wenger describes that our identities are a key structuring element of how we know and how knowing is interwoven in

the identities of the participants in their communities of practice. We as individuals identify ourselves with some communities but not with others and we define ourselves by what we are and what we are not. Wenger states that identities are the vehicles for realizing the communities and boundaries as an experience of the world.

2.1.3 Adolescence

In this study, I will cover adolescent as a general group through the adolescent development point of view although the research was conducted in Uganda.

UNICEF defines adolescence as people between 10 and 19 of age. (UNICEF, 2011). In 2015, the percentage of adolescent of the world's population was 16,3 percent (DevInfoWorldwide, 2016). That makes around 1.2 billion of the 7.3 billion global population. In Uganda, the adolescent population is bigger than the global average as 24,6 percent of the 38,845,000 Ugandans are between the ages of 10 and 19 (DevInfoWorldwide, 2016; UNICEF, 2016a).

Adolescence is a particular stage in life with distinct health and developmental needs and rights. Societies recognize that being an adult and transforming from a child into an adult are different from each other. This transformation is defined and recognized in various ways depending on the culture, and it changes over time.(WHO, 2016)

The period between the ages of 10 and 19 is a time of significant changes in physical, cognitive, social and emotional grounds. At the same time adolescent experience remarkable changes in their school environments, family relations, affiliations with their peer groups. All these changes may have profound effects on their learning and motivation. (Schunk & Meece, 2006)

2.1.3.1 Identity crisis and formation

Marcia (1980) defines identity as follows: "Identity refers to an existential position, to an inner organization of needs, abilities, and self-perceptions as well as to a sociopolitical

stance... a self-structure - an internal, self-constructed, dynamic organization of drives, abilities, beliefs, and individual history."

According to Marcia, identity develops over time as the structure is more dynamic than rigid. New elements are being added and others dismissed. The level of development of the structure of identity has an effect on the individual. The individual is more aware of their similarity to others, their own uniqueness, weaknesses, and strengths in making their way in the world when their identity is well developed. In turn, a poorly developed structure of one's identity results in a confused experience of the individual's distinctiveness from others and they rely on external sources in self-evaluation. (Marcia 1980)

Identity development begins at infancy and reaches its final phase at old age. However, the importance of adolescent identity is the physical development, cognitive skills, and social expectations that are unified for the first time and this makes it possible for young people to synthesize their childhood identifications and construct a path towards adulthood. Identity formation is not a tidy process. Even in the most minimum forms it involves a commitment to sexual orientation, development of ideological stance and undertaking a vocational direction. (Marcia, 1966, 1980)

Identity development at adolescence is guaranteed to include identity crises. Well-developed identity is open to changes and changes in relationships. This openness allows reorganization of identity, but each crisis makes the identity stronger and serves as a catalyst for adolescent identity development (Marcia, 1980).

2.1.3.2 Rolelessness

Adolescents' "role" is often defined by what they are not: adolescent are not yet adults but not children any longer. Notwithstanding the nonexistence of a particular role or place in the society, the adolescents are expected to be forming their own identities and sense of self-efficacy and self-worth. The lack of meaningful roles in which to participate has been proposed to be causing social and behavioral problems in the adolescent. This may lead to experiencing unhealthy development where adolescent become involved in negative

behaviors, such as crime or drug abuse and the adolescent might fail in bonding to positive institutions. (Chinman & Linney, 1998)

Many theories try to explain the risky behavior of the adolescent. One of the explanations is that adolescents experiment with negative roles. For those adolescents who don't find a positive role in which to participate are less likely to become bonded to positive institutions and are therefore more likely to bond to negative institutions. These adolescent are also more likely to engage in abnormal behavior such as delinquency. (Chinman & Linney, 1998)

2.1.3.3 Social bonding development

Bonding development is the processes by which people become bonded to a social unit. Hirschi´s (2001 (originally published in 1969)) control theory suggests that criminal acts are the result of weak or broken bonds to the society, meaning that a person is less likely to commit a crime if they have strong social bonds to conventional community institutions.

Hawkins, Catalano, & Miller (1992) merge Hirsch's control theory and social learning theory by introducing the *social development model*. Hawkins et al. (1992) suggest that social development model, bonding to prosocial roles within families, schools, peer groups and positive institutions are emphasized and viewed as protection against the development of problem behaviors such as crime and drug abuse.

Hawkins, Catalano, & Miller (1992) are proposing that the bonding development can not appear without the realization of the following occasions:

- adolescents have opportunities to make active, significant, and positive contributions to a group
- adolescents have the skills to carry out their responsibilities and if not, their responsibilities may become burdensome and sources of failure.
- adolescents experience recognition for their efforts

2.1.3.4 Critical awareness

Zimmerman and his colleagues (1990a; 1995; Zimmerman, Israel, Schulz, & Checkoway, 1992;) view critical awareness as a key component for empowerment. Critical awareness is the process of identifying resources and information which are necessary for analyzing problems that affect lives, environments, and further strategizing means to act as change agents in communities. In the case of the adolescent, critical awareness can be considered as the knowledge of when and where their skills can be used to make a contribution to the community.

As the adolescents spend more time with their peers than with adults, the critical awareness they learn through empowering activities may also include the development of interpersonal skills. (Ledford, Bronwyn, Dairaghi, & Ravelli, 2013)

2.1.4 Empowerment theory

The idea of empowerment is rooted in the social action ideology of the 1960's and the self-help perspectives of the 1970's. The concept of empowerment began to appear more often in the discussion in the realm of preventative social and community intervention in the late 1970's (Kieffer, 1984). 1980's and 1990's was an active era of the development of empowerment theory, and it's most significant contributors have been Rappaport, Zimmerman, Kieffer, and Dunst.

Since the mid-1990's psychological empowerment started to appear more frequently in discourses of other academic disciplines such as health and leadership. For example Zhang (2010) discusses the potential influence of empowering leadership on creativity.

Empowerment is used often as a synonym for concepts like coping skills, self-esteem, personal efficacy, mutual support, competence, citizen activism, natural support systems, community organization and neighborhood participation. All of these are related to empowerment, but especially Kieffer, Rappaport, and Zimmerman longed for a more accurate concept of psychological empowerment.

2.1.4.1 Psychological empowerment

Most of the definitions of psychological empowerment are somewhat similar to this:

> *"Empowerment is a construct that links individual strengths and competencies, natural helping systems and proactive behaviors to matter of social policy and social change. It is thought to be a process by which individuals gain mastery of control over their own lives and democratic participation in the life of their community." Zimmerman & Rappaport (1988)*

This definition reflects that psychological empowerment includes an understanding of one's sociopolitical environment and active engagement in one's community. More specifically, empowerment is a construct that links individuals' competencies, strengths, natural helping systems to social policy and social change (Perkins & Zimmerman, 1995; Rappaport, 1981, 1984). Empowerment is rather a transforming process constructed through action than a commodity that can be purchased (Kieffer, 1984).

Zimmerman (1995) suggests that psychological empowerment encompasses goals: beliefs that those goals can be achieved, awareness of the factors that inhibits or improves one's aspirations to achieve these targets and efforts and actions to fulfill these aims.

2.1.4.2 Empowering process vs. empowered outcomes

Marc Zimmerman in his article "Psychological Empowerment: Issue and Illustrations" (1995) attempts to describe the nomological network of empowerment at the individual level of analysis. Zimmerman uses the nomological network to help to specify relationships among the different variables to formulate a measurement model. Since the measurement of empowerment may be especially difficult, I will discuss empowerment in the following chapters through Zimmerman's model.

Zimmerman (1995) discusses the differences between empowering process and empowered outcomes. Empowering processes refer to how people, organizations, and communities

become empowered. Whereas empowered outcomes refer to the consequences of an empowering processes.

Zimmerman argues that the fundamental aspects of empowering processes are: critical understanding of one's socio-political context, efforts to gain control, and access to resources.

An empowering process is a process where people create or are given opportunities to influence decisions that affect their lives and control their own destiny. Zimmerman (1995, 1990) describes the empowering process as a series of experiences during which an individual learns to sense a closer correlation between their goals and how to achieve them, obtain a greater access to and control over resources and individuals, communities and organizations obtain mastery over their lives (Zimmerman, 1995, 1990).

The empowering process also includes opportunities to practice skills, learn about resource development and management, developing leadership skills, working with others on a common goal and expanding social support networks (Zimmerman, 1995).

Zimmerman (1995) discusses the issue of the development of the locally relevant measures and asks "How do we know an empowered outcome when we see it?". On the other hand, Rappaport (1984) argues that the idea of empowerment is more important than the "thing" itself and admits that "We don't know what empowerment is, but like obscenity, we know it when we see it ".

2.1.4.3 Components for psychological empowerment

For studying the empowered outcomes, and taking in account the context and population-specific characteristics of psychological empowerment, Zimmerman (1995) is suggesting a nomological network for which he identified observable measures relevant to psychological empowerment. However, the nomological network reflects individual level variables and an organizational or community level would require organizational or community level variables (Zimmerman, 2000).

Zimmerman (1995) describes three underlying assumptions to help set a framework for a more specific discussion around a nomological network of psychological empowerment:

- populations are different in various ways: age, socioeconomic status, sex (Rappaport 1984 , Zimmerman 1990)
- empowerment takes various forms in different environments and life domains (e.g. Work, hobbies, family)
- empowerment is a developmental phenomenon that changes over time

As discussed, psychological empowerment depends on context, population and developmental period and can be therefore considered as an open-ended construct. (Zimmerman, 1995).

Zimmerman (1995) found associations among literature that identifies perceived control variables, skill development, measures of participation and community involvement as constructs with empowerment theory. He also found evidence that sense of and motivation to control, decision-making and problem-solving skills and critical awareness of one's sociopolitical environment, and participatory behaviors are expected to be included in psychological empowerment.

Psychological empowerment theory consists of three qualities of intrapersonal, interactional and behavioral components. These three components together form a picture of a person who believes to have the capability to influence a given context (the intrapersonal component), understands how the system works (the interactional component), and engages in behaviors to exert control in the given context (the behavioral component) (Zimmerman 1995).

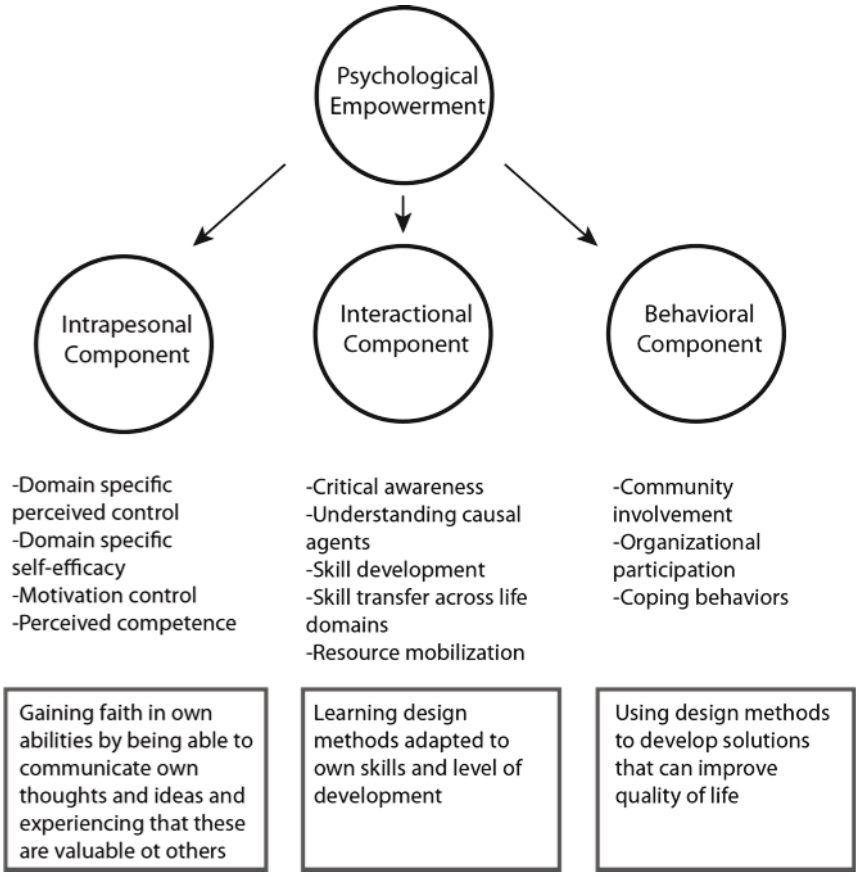


Figure 1 Nomological network for psychological empowerment (Zimmerman 1995)

2.1.4.4 The intrapersonal component of psychological empowerment

Zimmerman & Rappaport (1988) imply that the intrapersonal component refers to how people think about themselves, their capacity to influence social and political systems or to beliefs about people in general (Zimmerman & Rappaport 1988). This component also includes domain specific perceived control and self-efficacy (Paulhus, 1983), perceived competence, mastery and motivation to control. Sigmund Freud (1921) defines perceived control as following: "the belief that one has the ability to make a difference in the course or the consequences of some event or experience". Perceptions are included in the intrapersonal component as they are a primary element that provide people with the initiative to engage in behaviors to influence desired outcomes (Strecher et al. 1986). In other words, it is not expected for an individual who does not believe they have the capability to achieve a goal,

or would do what it takes to accomplish the it, or learn what is required to achieve them. (Zimmerman 1995, Checkoway et al 1993)

2.1.4.5 Interactional component of psychological empowerment

The Interactional component of psychological empowerment refers to the understanding people have about community and related sociopolitical issues (Zimmerman 1995). It also includes learning about options in a given context to be able to exert control in their environment. Zimmerman (1995) suggests that an individual needs to develop an understanding of the norms of a particular context. This might include cooperative decision making, commitment to collective interests and mutual assistance.

To interact effectively within the settings necessary to individuals, they may need to develop a critical awareness of their environment and an understanding of causal agents. Kieffer, (1984) and Freire 1973 conclude that critical awareness refers to an individual's understanding of the resources that are needed to accomplish a desired goal, knowledge how to gain those resources and skills to manage those acquired resources.

The interactional component also includes skills development on decision-making, problem-solving and leadership. Learning those skills help individuals to become independent, lead them to become their own best advocates and enable to control events in their lives. These skills can be developed in settings where the individuals have real opportunities to take part in decision-making and inhibited in settings where participation is not a possibility.

2.1.4.6 Behavioral component of psychological empowerment

The behavioral component refers to the actions an individual takes to exercise influence on the social and political environment through participation. The actions to influence, however, depend on the population and context. For an adolescent this might be realized through joining a student newspaper, student association or sports team, whereas for a patient who is released from a psychiatric institution empowerment behavior might include getting involved in a mutual help group. (Zimmerman, 1995, Zimmerman, Israel, Schulz, & Checkoway, 1992)

2.1.4.7 There is no "one size fits all" model for empowerment

Zimmerman (1995) describes three underlying assumptions to help set a framework for a more specific discussion of the nomological network of psychological empowerment;

- populations are different in various ways: age, socioeconomic status, sex (Rappaport, 1984, Zimmerman 1990)
- empowerment takes various forms in different environments and life domains (e.g. Work, hobbies, family)
- empowerment is a developmental phenomenon that changes over time

Rappaport (1981, 1987) implies that empowerment will look different for different people, organizations, and settings. As discussed in 2.1.4.3, components od psychological empowerment, Zimmerman (1990, 1995) suggests that psychological empowerment differs across individuals and settings and is a developmental phenomenon that alters over time and that it may have to be accepted that the measures developed for one study may not be appropriate for another.

Zimmerman (1995) suggests that due to the dynamic nature of psychological empowerment every individual has the potential to express empowerment at one time and disempowering process at the other. Also, some people might be more empowered than others and vice versa others might be less empowered than others.

Zimmerman (1995) concludes that *"the development of a universal and global measure of empowerment is not an appropriate goal because it may not mean the same thing for every person, organization or community everywhere"*

2.1.5 Self-efficacy

In the late 70's, Albert Bandura created a theory about self-efficacy and defines it as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986). Bandura's self-efficacy theory

describes how people think, feel and motivate themselves and behave accordingly. Self-efficacy theory has been widely applied in the academic research around the realms of learning, business, athletics, medicine and health, media studies, social and political change, moral development, psychology, psychiatry, psycho- pathology, and international affairs motivation and education (Pajares, 1996).

Pajares (1996) concludes that in educational research it has been widely reported, that without regard to earlier achievement or ability, self-efficacious students work harder, persist longer, are more tenacious in the face of adversity, have lower anxiety and greater optimism and achieve more. Concerning individual's future, Ormrod (2008) proposes that self-efficacy also encourages one to set higher expectations for their future performances.

Many researchers conclude that self-efficacy beliefs play a major role in the formation of motivation and intention to tackle challenges (Jerkku, 2016). It has been suggested that person who is possessing a high level of self-efficacy is likely to think of tasks as challenges that he or she has the capacity to complete whereas a person with low perception of self-efficacy tends to see tasks as difficult or even impossible to complete. According to Zimmerman (1995), the level of self-efficacy determines how much willingness and power an individual has to complete an assigned task. Self-efficacy and expectations are often related to each other though there is no automatic relation between them. Just like when expecting positive outcomes, self-efficacy is different from other expectancy beliefs as it is more situation and task specific (Schunk & Meece, 2006).

However, Pajares (1996) suggests that self-efficacy beliefs are domain specific and refer to the comprehension of one's capabilities related to performing a given task or ability to learn within a specific domain. Consequently, possessing a high level of self-efficacy in one domain does not automatically mean possessing a high beliefs of self-efficacy in other fields as well. On the other hand building self-efficacy in multiple domains increases one's confidence in mastering new ones (Ormrod, 2008).

As mentioned before, the level of self-efficacy is determined by an individual's belief in their own capabilities to achieve goals and tasks. When one beliefs in their own abilities, they won't try to avoid even difficult tasks (Ormrod, 2008). Consequently, the level of self-

efficacy does not only measure the skill set that a person possesses but their actual ability to employ those skills. Ormrod (2008) also links self-efficacy with one's willingness to experiment with new ideas.

When an individual believes that their actions have an effect on reaching targeted goals, they will have an incentive to reach those goals (Bandura 1997). Then again, an individual who doesn't believe that their actions will have an effect, they will not have the incentive to work towards the goal efficiently. Zimmerman (1995) suggests that in this way, self-efficacy can be comprehended as a base for one's actions and behavior.

Bandura's theory on self-efficacy suggests that individual's behavior is a result of the interactions between the individual and their environment. This interaction is called reciprocal determinism. Bandura (1997) expresses that the interaction between the individual and the environment work similarly to both directions: actions and behavior of an individual have an effect on the environment and vice versa.

Bandura (1997) proposes that self-efficacy development is influenced by four different factors: Enacted mastery experiences, vicarious experiences, social persuasion and emotional arousals.

Enacted mastery experiences imply that an individual assesses their abilities to act based on the reflections of their past significant experiences. In other words, enacted mastery experiences refer to the significant experiences that have an influence to an individual's behavior. Positive experiences of success enhance individual's self-efficacy beliefs while a negative experience weakens the individual's self-efficacy beliefs. In Bandura's theory of self-efficacy, prior experiences have a remarkable role in the development of self-efficacy beliefs.

Vicarious experiences refer to occasions where an individual compares their own level of skills and capacity to a reference group – people who are in a similar situation like they are in. In other words, vicarious experiences are related to social comparison. In this light, self-efficacy beliefs on an individual are inclined to increase in a situation where the individual thinks that they are more capable to succeed in a given task than their reference group. On

the other hand, if the individual sees that the reference group is more capable to succeed the self-efficacy beliefs are more probably to decrease (Bandura, 1977). It is important to note that self-efficacy beliefs are also dependable on evaluating own skills and competences rather than only concentrating on the reference groups performance and skills.

Social persuasion refers to encouragement or discouragement that an individual receives from another. The encouragement or discouragement can happen both verbally and non-verbally. Social persuasion becomes particularly meaningful in occasions where an individual encounters challenges that affect their capability to achieve pre-set goals. According to Bandura (1997), negative persuasion has stronger effects than positive persuasion.

Physiological and emotional arousals refer to individual's sensations from their body and how they perceive these emotional arousals to influence their self-efficacy beliefs (Bandura, 1977). For example, an individual's perceived self-efficacy can be impacted negatively while making a presentation in front of a large group of people or while taking an exam in case one feels stress, racing heart or anxiety, one might even avoid completing certain tasks due to arousals of negative emotions.

As mentioned earlier, in Bandura's theory of self-efficacy, these four sources are affecting individual's self-efficacy beliefs. Figure 2 describes how the process of these different factors affect one's self-efficacy beliefs and how the process results in change of behavior and performance.

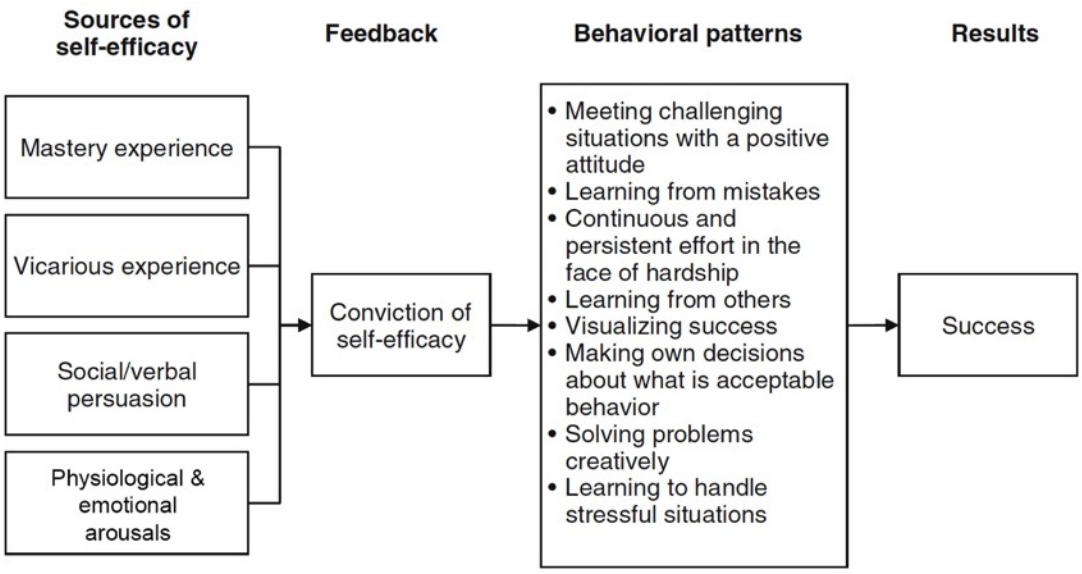


Figure 2 General model for successful training of self-efficacy compiled by Jerkku (2016)

2.2 Adolescent empowerment

Chinman & Linney (1998) suggest that much of the literature on empowerment is concentrating on adults. Therefore, they suggest a model of adolescent empowerment in their article "Toward a Model of Adolescent Empowerment: Theoretical and Empirical Evidence". This model is illustrated in Figure 3. The authors consider adolescent empowerment as a preventative intervention for many of the problems that this age group confronts.

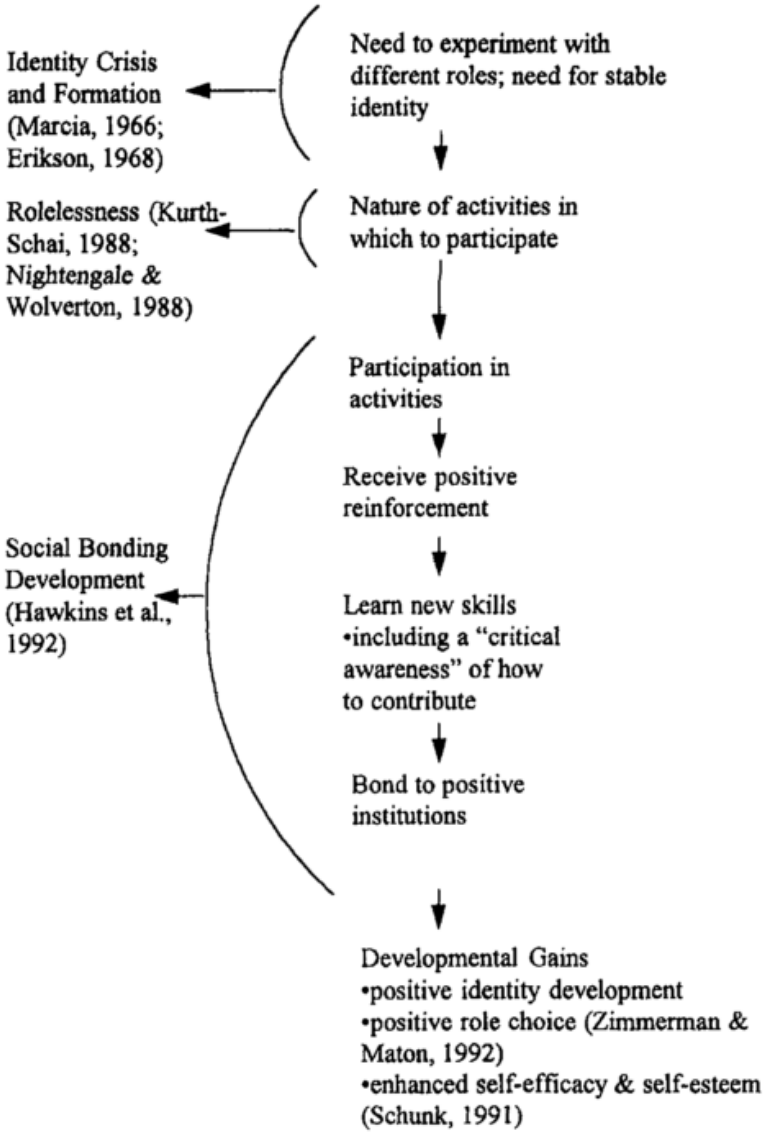


Figure 3 Positive adolescent empowerment cycle (Chinman & Linney, 1998)

In the positive adolescent empowerment cycle, Chinman & Linney (1998) are merging theories from identity development, bonding theories, and rolelessness. In this model adolescents are engaged in a process where they develop a stable and positive identity by experimenting with different roles and by consolidating the feedback they perceive.

In the heart of the empowerment cycle is participation in meaningful activities. Through participation, the adolescents learn useful and relevant skills and are positively recognized by their efforts. Participation will also teach them skills that can be useful later in life.

The adolescent empowerment model predicts that as a result of the bonding development process (action – skills development – reinforcement) adolescents will feel more confident, in control, and have higher self-esteem and self-efficacy. Chinman & Linney (1998) are postulating that the bonding development process is an integral part of the adolescent empowerment cycle.

The positive empowerment cycle suggests that when adolescents are confident, have critical awareness, gain other needed skills, and are reinforced for their efforts, they will be positively empowered. The hypothesis of the model by Chinman & Linney (1998) is that positive empowerment will benefit adolescent development.

2.2.1 Self-efficacy and adolescent

Adolescence is a sensitive time in a human's development. Many positive factors can help to promote adolescents' self-efficacy beliefs while many negative factors can lower their self-efficacy. Both positive and negative changes in adolescents' self-efficacy development have momentous consequences in adolescents' performance in their school, friendships, vocational and career choices. (Schunk & Meece, 2006)

Self-efficacy is defined as "one's perceived capabilities for learning or performing actions at designated levels" (Bandura, 1997) and a lot of the literature concerning self-efficacy in adolescence is concentrating in education and different factors affecting academic performance. Schunk & Meece (2006) give an example of how self-efficacy might affect adolescent:

> *"Stacie and Meg—juniors at Atlas High School—soon must submit their course requests for next year. They have completed 3 years of science as mandated by the school system and must decide whether to take additional courses. Physics is an option, and although it is not required they believe that taking it may help with college admission. To date they have received similar grades (As and Bs) in science courses. The night before the class sign-up date they discuss the situation with their parents. Meg's dad feels that she should take physics since it will help her understand how the world works. Meg notes that Ms. Blakely (the physics teacher) is not very good. After*

> *further discussion, however, Meg concludes that she feels confident about learning physics because she always has been able to learn science in the past and that if she does not understand something she will ask the teacher. So Meg decides to sign up for it. Stacie, on the other hand, tells her parents that she just does not feel smart enough to learn or do well in physics and that because Ms. Blakely is not a good teacher Stacie would not receive much help from her. Stacie also tells her parents that few girls take the course. Under no pressure from her parents, Stacie decides she will not sign up for physics"* Schunk & Meece (2006).

In this story, Both Meg and Stacie had multiple factors influencing their self-efficacy in learning and succeeding in physics, such as the proportion of girls taking physics and the quality of their teacher. Stacie is having self-doubts about her capability to learn and succeed in physics and decides not to take physics, whereas Meg believes that she will be able to learn with the aid of her teacher and expresses higher self-efficacy and decides to take the additional physics courses.

As told in the story, Meg's and Stacie's self-efficacy beliefs were a critical determinant of their choices and courses of action they pursued. Pajares (2006) explains that it is typical especially for young people to engage in activities in which they feel competent and avoid those in which they do not. This behavior is particularly critical at the high school and college levels. This is due to the increasing amount of choices young people have concerning academic choices available for them (Pajares, 2006) .

Individuals who develop a persistent self-efficacy during adolescence are in a better position to endure the common developmental challenges and better positioned for learning into adulthood compared to their peers with lower self-efficacy. (Schunk & Meece, 2006) The environment, peers, school, teachers and parents are all factors that affect the adolescent's self-efficacy development.

During adolescence, the individuals go through significant changes in physical, cognitive, social and emotional development. Adolescents also experience significant changes in their family relations, school environments, and peer group affiliations, and these changes can have fundamental effects on the adolescent's self-efficacy. (Schunk & Meece, 2006)

2.3 Design thinking

The concept of design thinking has gained a lot of attention during the past decades. Especially in the business, management and information technology communities, design thinking has been identified as an attractive and appealing new paradigm for dealing with complex and open-ended challenges (Stacey, Griffin, & Shaw, 2000). Design thinking integrates expertise from different fields such as social sciences, design, engineering, and business. As a discipline, it uses the methods and sensibility of designers to create solutions that match people's needs. Design thinking is executed best in the culture of vibrant communication and iterative learning cycles driven by rapid conceptual prototyping. The use of design thinking methods has resulted in many innovative products, systems, and services (Brown, 2008). It is rather evident that design has also expanded beyond the traditional realm of design into new areas such as services, strategy, organization design, (eg. Cooper, Junginger, & Lockwood, 2009; Kimbell, 2009; Lockwood, 2009) institutional design and policy making.

2.3.1 Two discourses of design thinking

Design thinking is often described as the "designerly way of knowing" (Cross, 2001) or how Designers think (Lawson, 2005). Design thinking is often separated into two discourses: Johansson-Sköldberg, Woodilla, & Çetinkaya (2013) names them Designerly Thinking and Design Thinking.

The Designerly Thinking discourse is rooted in the theory and practice in the academic field of design and discusses the academic construction of the practical skills and competence professional designers possess and the theoretical reflections of the non-verbal competence of professional designers. The Design Thinking discourse, sometimes also referred as the management discourse (Johansson & Woodilla, 2010) is discussing the realm where design practice and competence is used beyond the traditional design disciplines. (Johansson-Sköldberg et al., 2013)

The management discourse has more recent history whereas the design discourse goes back several decades, appearing in the late 1960's (Johansson and Woodilla, 2010).

Johansson-Sköldberg et al. (2013) in their article *"Design Thinking: Past Present and Possible Futures"* are critically looking at the design thinking discourse and it's different meanings depending on the context. They believe that there is not a unique meaning of design thinking, and therefore they are looking where and how design thinking is used, both theoretically and practically and what meaning design thinking is given. Johansson-Sköldberg et al. (2013) describe that in the management discourse design thinking has been characterized as the "best way to be creative and innovate" and the writing style is described as "consultancy genre" including "excessive praise. The aim of the Design discourse is described purely academic and concentrating mostly on understanding for its own sake or for communicating the understanding for students (Johansson-Sköldberg et al. 2013).

2.3.2 Five sub-discourses of designerly thinking

Johansson-Sköldberg, Woodilla, and Çetinkaya (2013) divide the theoretical perspectives of the academic discourse of designerly thinking into five sub-discourses with the foundational works:

1. Design and designerly thinking as the creation of artifacts
2. Design and designerly thinking as a reflective practice
3. Design and designerly thinking as a problem-solving activity (Buchanan, 1992)
4. Design and designerly thinking as a way of reasoning/making sense of things. (Cross, 2001; Lawson, 2005)
5. Design and designerly thinking as a problem-solving as creation of meaning

Herbert Simon defines design as ´the transformation of existing conditions to preferred ones´ (Simon, 1969). Although he might have never used the exact word `design thinking`, he suggested that the difference between design and other disciplines is, that design is about creation while the other sciences deal with what already exists (Simon, 1969). Simon perceived design to include all conscious to create artefacts, and thus separated it from social sciences, natural sciences and humanities, but not from engineering.

2.3.3 Experimental approach to design research in academia

Buchanan (1992) describes designer's work through their way of thinking to going about *wicked problems* which are problems with the fundamental indeterminacy of social systems which have no single solutions, hence needing plenty of creativity to find solutions. Buchanan sees the problem formulation go hand in hand than in succession.

Cross and Lawson (Cross, 2001; Lawson, 2005) were both trained as architects which probably influenced in their practical practice-base approach to design thinking. Both Cross and Lawson concentrated in describing and reflecting on designer's working and thinking. Lawson focused on the awareness of designer's work and the psychology of the creative design processes, while Cross' work focused on the abilities of the designer and activities designers do during the design activity. Both Cross and Lawson are practice-based, and they are approaching design thinking through examples rather than from a philosophical perspective. (Cross, 2001; Lawson, 2005)

2.3.4 Three origins of the design thinking discourse

Johansson-Sköldberg et al. (2013) suggest that design thinking in the management discourse can be interpreted as the way managers understand design in a more straightforward way. Design management became an academic field in the 1970's when designers started to help management school practitioners to understand design and the relevance of it. It took more than 20 years until design thinking began to appear more frequently in the discourse. During the first decade of the new millenium, design thinking as a concept became the portal for the realm of design how to contribute to innovation and a way how to deal with the complex reality.

Johansson-Sköldberg et al. (2013) divide the different ways of working with design in the realm of management into three origins of the design thinking discourse:

1. Design thinking as design company IDEO's way of working with design and Innovation (see Brown & Martin, 2015; Brown, 2008)

2. Design thinking as a way to approach indeterminate organizational problems, and necessary skill for practising managers (Dunne & Martin, 2006)
3. Design thinking as part of management theory

IDEO is one of the world's most well-known design companies that calls itself "innovation company". IDEO's founder David Kelley his brother Tom Kelley and IDEO's CEO Tim Brown have been significant contributors in this discourse, and they have written multiple books to describe IDEO's point of view, design practices and methodologies. IDEO's contribution is more based on their own description of the process than on a published academic theoretical framework (Johansson-Sköldberg et al., 2013). Many of Brown's books and articles use stories to assist everyone, especially business managers and social innovators to use IDEO's methods. Brown suggests that anyone can do design thinking. Thomas Lockwood from Design Management Institute is on the same mission with Brown and Kelleys to make designers practises accessible and meaningful for managers.

Roger Martin from the Rotman School of Business at the University of Toronto was particularly interested in the cognitive processes of successful executives and their need for more than analytical thinking and started to promote teaching design thinking to management studens (Johansson-Sköldberg et al., 2013) (Dunne & Martin, 2006). In this discourse design thinking became a way to approach organizational problems and a necessary component for management education. Furhtermore, design thinking is described in this discourse as an ongoing cycle that included the following steps: idea generation (abduction), predicting consequences (deduction), testing, and generalizing (induction) (Johansson-Sköldberg et al. 2013). The work of Martin and Dunne inspired many other authors to apply design thinking in strategy, organizational change and development.

Professors and researchers of management information systems Richard Boland and Frank Collopy were inspired by architect Frank Gehry's way of working. Collopy and Boland use alternately two concepts: design thinking and design attitude. The latter one refers to the expectations and orientations that are brought by individuals to a design process. In this discourse, Boland and Collopy are leaning more towards cognitive characteristics of design thinking than design thinking as a way of working. (Johansson-Sköldberg et al. 2013)

2.3.5 The common elements of design thinking

Hassi & Laakso (2011) propose a framework (Table 1), which is summarizes the management view on design thinking based on interviews with experts on design thinking and review of selected literature. The framework's purpose is to further the understanding of design thinking and it should be considered more as suggestive than conclusive. It presents the elements that are "interlinked and manifested through practices, thinking and mentality" in design thinking. (Hassi & Laakso, 2011)

Table 1. framework explicating the common elements of design thinking, as depicted in the management discourse (Hassi & Laakso 2011)

PRACTICES	THINKING STYLES	MENTALITY
Human-centered approach E.g. empathizing, ethnography, observation, people-based, user centered	**Abductive reasoning** E.g. the logic of "what could be", finding new opportunities, urge to create something new, challenge the norm	**Experimental & Explorative** E.g. the license to explore possibilities, risking failure, failing fast
Thinking by doing E.g. early/fast prototyping, fast learning, rapid iterative development cycles	**Reflective reframing** E.g. Rephrasing the problem, going beyond what is obvious to see what lies behind the problem, challenge the given problem	**Ambiguity tolerant** E.g. allowing and tolerance for ambiguity, comfortable with ambiguity, liquid and open process
Visualizing E.g. visual approach, visualizing intangibles, visual thinking	**Holistic view** E.g. systems thinking, 360 degree view on the issue	**Optimistic** E.g. viewing constraints as positive, optimism attitude, enjoying problem solving
Collaborative working styles E.g. multidisciplinary collaboration, involving many stakeholders, interdisciplinary teams	**Integrative thinking** E.g. harmonious balance, creative resolution of tension, finding balance between validity and ratability	**Future oriented** E.g. orientation towards the future, vision vs. Status quo as a driving force
Divergent + convergent approach E.g. ideation, pattern finding, creating multiple alternatives		

Design thinking can be outlined in three key dimensions: practices, thinking styles and mentality. The dimensions accommodate a set of elements common in design thinking - methods, values and concepts. The elements should be counted as overlapping descriptions of features related to design thinking, not as separate or exclusive units (Hassi & Laakso, 2011)

The mentality dimension refers to the mentality of both the individuals immersed in the work and the mentality and culture of the organization: how the problems are approached and the orientation towards the work. The elements common in this dimension are human-centered approach, thinking by doing, visualizing, the combination of divergent and convergent approaches, and collaborative work style.

The practices dimension consists of elements that are connected with concrete activities: tangible approaches, the use of particular tools, activities and ways of working. The elements common in this dimension are experimental and explorative, ambiguity tolerant, optimistic, and future oriented

The thinking styles dimension is linked to questions related to methods of thinking, processing information, and cognitive styles. The elements common in this dimension are abductive reasoning, reflective reframing, holistic view, integrative thinking. (Hassi & Laakso, 2011)

2.4 Empowerment through participatory design process

Participatory design has it's roots in 1970's Scandinavia, when designers and labor organizations started to collaborate to develop systems that would most effectively promote the quality of work life (Hussain, Sanders, & Steinert, 2013). Figure 4 illustrates the traditional participatory design is a process where users, stakeholders, and designers work together in the design process (Sanders, Brandt, & Binder, 2010). In the participatory design practitioners view, best ideas arise in collaboration with participants since they are the experts in how they live their lives, their culture and habits. By taking part in participatory design process, individuals also learn participatory skills and can effectively participate in decisions that affect them. (Sanoff, 2007)

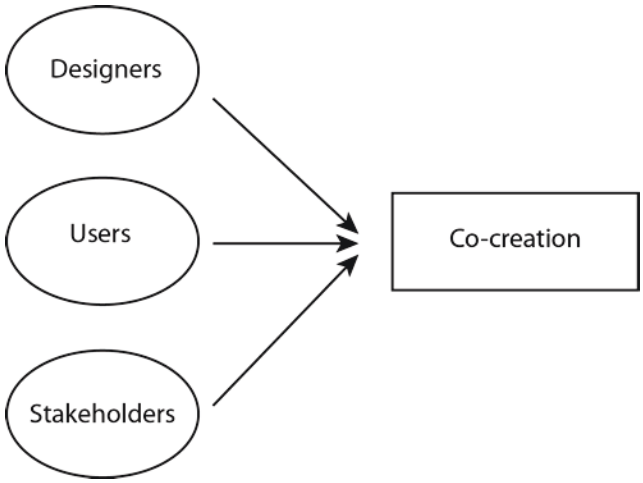


Figure 4. traditional model for participatory design (sanders and Stappers 2008)

Hussain et al. (2013) describe their experiences with using participatory design tools in Cambodia when developing ideas for a device that would enable children who use prosthetic to walk in mud. In their experience, the traditional model of the participatory design illustrated in Figure 4 did not always reflect the situation in developing countries. They identified four barrier categories of factors that made the traditional model not applicable.

1. Human aspects
2. Social, cultural and religious aspects
3. Financial aspects and project timeframe
4. Organizational aspects

Although Hussain et al. identified these four barrier factors, they found opportunities to create sustainable results through participatory design as an enabling process for the development of psychological empowerment. Hussain et al. (2013) and Hussain (2010) state that designers that undertake participatory design projects in developing countries should not only aim at creating a product or a service to solve a local problem but also support building the local human capacity so that future design projects would not be dependent on foreign designers but could be carried out by the locals themselves.

Hussain (2010) uses Zimmerman's (1995) theory of empowered processes and empowered outcomes, presented in paragraph 2.1.4.2 to explain how the participatory

design created enabled the emergence of both. Hussain (2010) gives an example of how the empowered outcomes of the participatory design process can be that the participating children gain more confidence in their own abilities by being part of developing solutions that can help themselves but also their peers. Furthermore, the developed product or service can be viewed as an empowering outcome as they contribute to improving the lives of children. As a concrete example, Hussain (2010) mentions a wheelchair that can enable a child with disabilities to have more independent lifestyle and a better access to the physical environment.

Hussain (2010) transfers Zimmerman's (1995) model of empowerment presented Figure 1 in the context of participatory design. As explained in paragraph 2.1.4.3 components of psychological empowerment, Zimmerman (1995) suggests that there is three components of psychological empowerment: intrapersonal, interactional and behavioral component.

In the context of designing with children, Hussain (2010) suggests the intrapersonal component transferred into the context of participatory design (Figure 5) can result in children becoming empowered by gaining confidence through experiencing that they can express their thoughts, ideas and opinions and adult designers are interested in hearing them. The interactional component in the participatory design process means that children must learn about design to gain critical awareness of what is required to achieving goals. This awareness might include acquiring decision-making, problem-solving or leaderships skills (Zimmerman, 1995). The behavioral component of the psychological component in participatory design project might mean that children take part in developing solutions that will be useful for themselves and their peers.

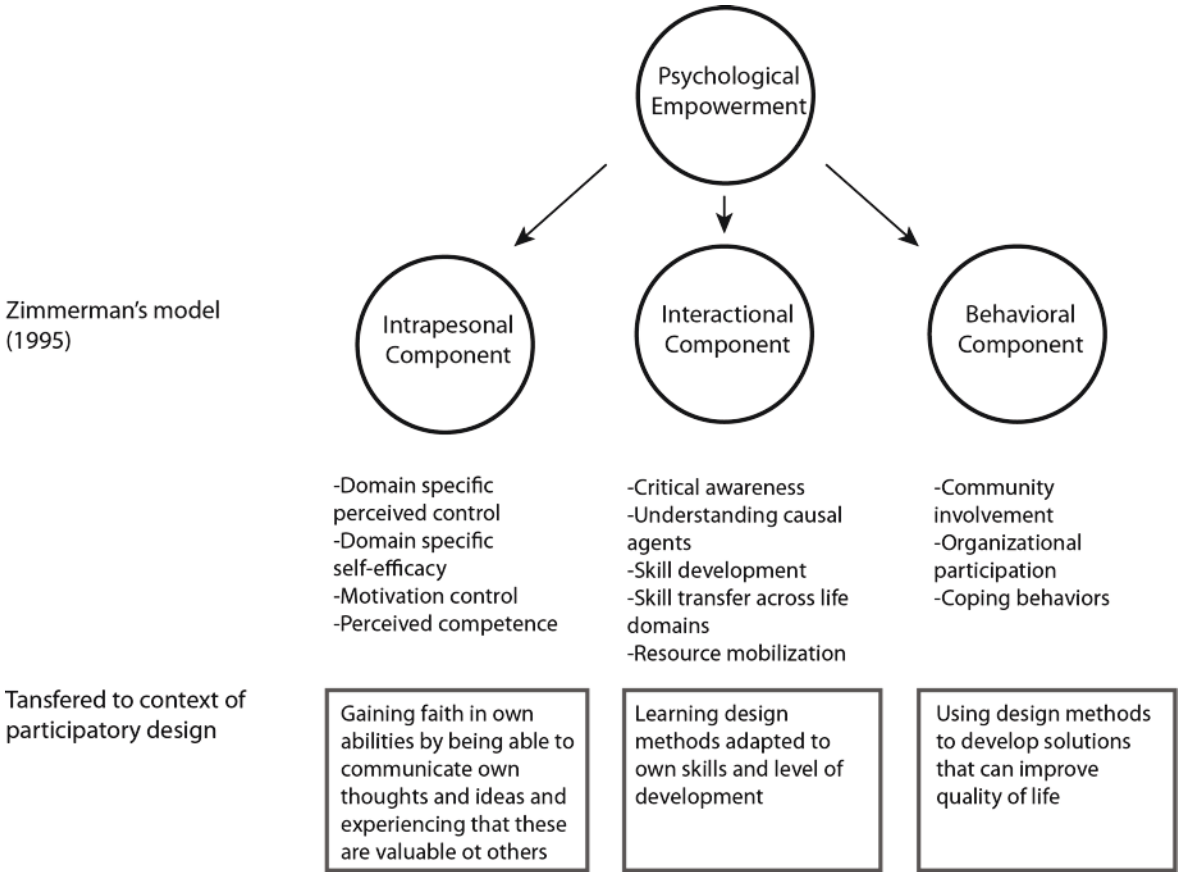


Figure 5. Psychological empowerment in design projects (Hussain 2010)

2.5 Related toolkits

This section introduces four design toolkits by the world's leading design agencies; IDEO and Frog and two toolkits by UNICEF. The selection of these four design toolkits for this study is based on their applicability to similar context with the Youth Led Innovation program.

2.5.1 Human-centered design toolkit

Human-Centered Design Toolkit (HCD) was created in collaboration with IDEO, Heifer International, International Development Enterprises (IDE) and ICRW. The goal of the toolkit was to "create a method for guiding innovation and design for people living under 2 dollars a day" (IDEO, 2012). The toolkit facilitates a process of hearing communities needs, creating innovative solutions that are desired by the people, are technically and organizationally feasible and financially viable.

The toolkit is developed for organizations and businesses who want to bring innovation to the base of the pyramid, enter new region, adapt technology to a new a region and understand the needs of the constituents better.

The toolkit includes techniques, methods, tips and worksheets to guide through the process. Also, it includes case studies of projects where the methods have been used. (IDEO, 2012)

2.5.2 Collective Action Toolkit

Frog, which is a global design company worked in collaboration in Africa with the Nike Foundation where they identified a need for a framework that would empower communities to design solutions to problems. The Collective Action Toolkit (CAT) was launched in 2012, and it has been translated into multiple languages.(frog, 2016)

The toolkit website declares the CAT is easy to understand, stand-alone resource for anyone to lead anyone through a problem-solving process to any problem. CAT uses design thinking and it is developed for foundations and NGO's. (frog, 2016)

2.5.3 The Adolescent Kit for expression and innovation

UNICEF's Adolescent development and Participation unit (ADAP) developed an "Emergency Kit for Adolescent" which purpose is to promote "positive outcomes for adolescents' psychosocial wellbeing, learning life skills and positive active engagement in their communities" (UNICEF, 2014).

The Adolescent Kit targets the most vulnerable adolescent in humanitarian situations and provides a coherent approach to those situations. The adolescent kit consists of a package of guidance, tools, activities, and supplies. The kit supports activities using arts, innovation and adolescent-led projects and it can be integrated into existing UNICEF and partner programs. The adolescent kit is actualized through adolescent circles approach which supports the participants to develop key competences that can help them to build healthy relationships, recover emotionally from a crisis, and engage positively with their community.

2.5.4 UPSHIFT

UPSHIFT: Social Impact Workshop is a program run by UNCIEF and its partners. The program has been developed in Kosovo at the UNICEF Innovations Lab and the program has been implemented in other UNICEF Innovations Labs as well.

The goal of UPSHIFT is to prepare young people from marginalized communities to identify, analyze and take entrepreneurial actions against the challenges in their community and to make young people realize their role as the agents of social change (Zucker, 2015). During the workshop the participants learn hard skills they will need to be successful, learn about project development, build leadership skills, professional readiness and resilience. (Zucker, 2015)

UPSHIFT is a weekend-long workshop for ten youth teams. Before the workshop, Innovations Lab staff travel to schools, youth centers and even homes of the young people where they are provided with introductory training to problem identification, causal analysis, and user research. The practice worksheets from these trainings serve as applications for the workshop. (Zucker, 2015)

A panel of local authorities, business leaders and members of the development community selects five teams based on their final pitches to implement their projects, get ongoing support from the lab and seed funding. (Zucker, 2015)

The UPSHIFT program is constantly evolving and the materials are further developed at the moment.

3 Methodology

This research is based on qualitative research that aims to show how the idea of the Youth Led Innovation program came about, how the development was carried out, how the children, adolescent, youth, and their teachers or instructors were involved and finally how the theory explains the observed phenomena.

Denzin & Lincoln (2005 p.3) define qualitative research as follows: "qualitative research is a situated activity that locates the observer in the world". Eriksson & Kovalainen (2008) explain that "the philosophical idea behind qualitative research is that reality is subjective". These both explanations imply that qualitative research is done in the natural settings of the phenomena which are the objects of the research. The aim of qualitative research is to make sense of and interpret the researched phenomena from the perspective of what kind of meaning the phenomena bring to people (Denzin & Lincoln, 2005). The qualitative research considers reality as socially constructed. This reality can be interpreted and produced through social and cultural meanings (Eriksson & Kovalainen 2008). Both Eriksson & Kovalainen (2008) and Denzin & Lincoln (2005) conclude that experiences, perceptions and interpretations of reality are different for each person, they might change and evolve in social interaction with people and evolve over time. During this research it was really crucial to be mindful about these variables.

Practices that are used in qualitative research consist of field notes, conversations, interviews, recordings, photographs and memos (Denzin & Lincoln, 2005). The process of the study is visualized in Figure 6. During the 3 years (2012-2015) I spent several weeks in schools and youth centers in Uganda. I gathered the data with participatory action research approach and by open-ended semi-structured interviews, by organizing participatory workshops, observations which were all recorded by taking taking notes, photos and videos and transformed into in-depth analysis and stories of those observations and interactions.

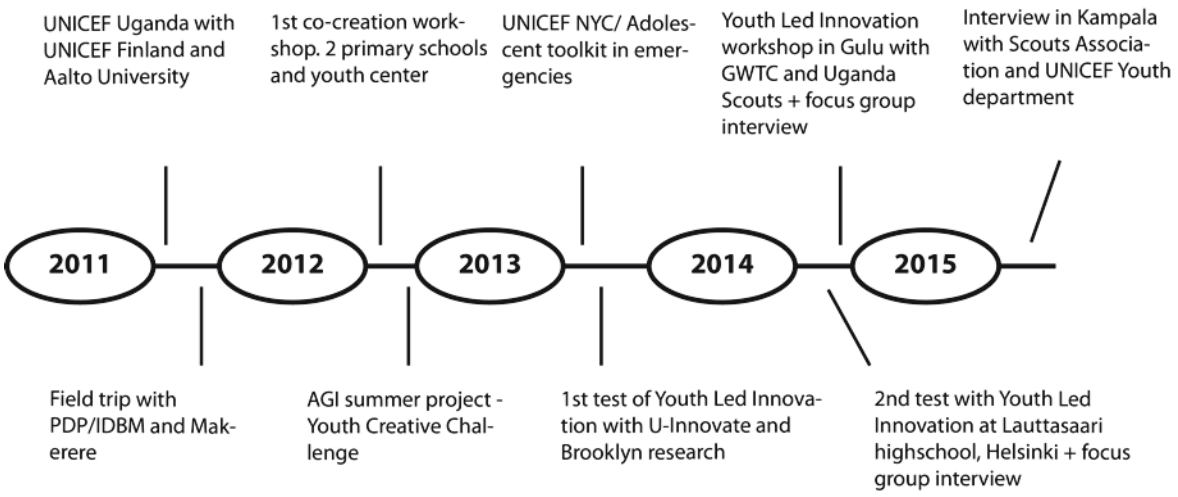


Figure 6 research process

3.1 Action research

The approach used in this study is action research, more precisely participatory action research (PAR), which is one of the several differently labeled approaches within action research (Kemmis & McTaggart, 2007). Action research originates from anthropology, where researchers typically approach a specific community and become active members of it and help its members to face and defeat challenges they face. When doing action research with disadvantaged and voiceless groups, action research has also been found as an important empowerment tool (Eriksson & Kovalainen 2008).

Real-life cases and challenges indeed are the driving force of action research and are usually the starting point for the research. Researchers are often the ones who initiate the action research projects, not the organizations (Eriksson & Kovalainen 2008). In this study the action research was undertaken by the researcher but the organization had a significant role in kick-starting and making the research possible. The idea for the youth led innovation program was born in 2012 during the youth creative challenge but the actual first steps for the program and the idea for the research happen in 2013 during my internship at the UNICEF Innovation Unit in New York.

The intention in action research is to contribute both to academic theory and practical actions. (Eriksson & Kovalainen 2008) Having both academic and practical actions and impact were strong drivers for this research. The idea for both research and youth led

innovation program stemmed from an observation made during the *youth creative competition* in 2012, discussions with the participating youth and their supervisors, and outcomes of that 3-day workshop. The initial idea for the research and youth program was to develop means to support teachers and youth workers in Uganda to run similar programs and to study the phenomena in the research.

Figure 7 Betty Lalam, the founder of Gulu War Affected Training Centre prototyping with her students during Youth Led Innovation workshop

Action research is often considered as a appropriate research approach when "close collaboration with the research object and its practical problem solving is part of the research process" (Eriksson & Kovalainen 2008). Action research process is iterative and it starts with the researcher getting the idea of the "field" in order to identify the research question and to design the process of "research in action". This requires practical and general knowledge of the field and prior theoretical knowledge. (Eriksson & Kovalainen 2008) As mentioned earlier, the idea for this study was born in Uganda in 2012 and New York in 2013, but the process started much earlier in 2011 when I was acting as the project manager for the Aalto-UNICEF PDP-course. We approached the project with a participatory approach,

since we were aware that the children and youth were the experts of their own world and life, and the only way to really understand our given design brief was to engage the users as much as possible. We also tried different methods to put the users in the designers shoes and organized short workshops. During the PDP project, I got a great immersion to the topic, learned how the challenges of young Ugandans look from the UNICEF country office's perspective and what the reality is for these young people. I also experienced the great potential the local young people have.

In the following chapters, my aim is to explain how action research was applied during the development of the Youth Led Innovation program. Since the aim of this study is to describe the series of actions that were taken during the development process of the Youth Led Innovation program, action research is the perfect approach. Eriksson & Kovalainen (2008 p.166) describe it as follows: "If the research question is related to understanding the process of change, development or improvement of some actual problem, then, in order to learn from it, action research is an appropriate application for research" (Eriksson & Kovalainen, 2008 p.166)

3.1.1 Participatory action research

The roots of participatory action research (PAR) are in the context of social movements in the developing world. This research method was championed by people such as Paulo Freire, Orlando Fals Borda, Rajesh Tandon, Anisur Rahman, and Marja-Liisa Swantz (Kemmis & McTaggart, 2007). It draws from Paulo Freire's (2000) approach where PAR practitioners focus on empowering marginalized and disenfranchised groups to take action to transform their lives (Cornwall & Jewkes, 1995).

In PAR, people's own knowledge is valuable and participatory action researchers considers people as agents rather than objects and that people are capable of analyzing their own situations and designing their own solutions (Cornwall & Jewkes, 1995). In this study, the view of the people participating is very much similar to Cornwall & Jewkes'. Actually this view is considered as the thread of the entire research and the starting point for the Youth Led Innovation program.

Cornwall & Jewkes (1995) consider PAR more as “an attitude than a series of techniques”. They expand the research activities to include art, performance and story-telling and more conventional methods like focus group discussions and processes developed through practise. The iterative nature of action research is in crucial role while developing processes that suits the context and group.

When this research process started, I didn’t have a specific theoretical framework or theory in mind for my thesis work, but the approach used in the PDP projects and while organizing the youth creative competition in 2012 stemmed from human-centered design and participatory design. If the approach should be described in one word, it would be co-create. Despite the extensive preparations and desk study, it was clear that none of the “existing” processes and methods could have been applied directly in the context of northern ugandan schools. Through a series of trials and errors more appropriate and functioning methods were created.

A good example of this kind iteration cycle in this research was the first attempt to put the pupils in the shoes of a designer and ask them to build a new device for water transportation. The short workshops organized for fifth graders in two schools gave more insights about their ability to think outside of the box, challenges related to water transportation, creative ways of working and what kind of influence the presence of the teacher has. The workshop resulted in barely any insights for the water transportation device. When the next opportunity for a design workshop came, we developed another kind of approach based on the lessons learned from the first design workshop and put more effort on understanding how to utilize the hierarchy of the school system and how to include storytelling, games and energizing games to support the creativity of the participants.

Figure 8 Primary and Secondary School students creating a journey map of water transportation at the Youth Creative Competition

Participatory action research is a social process and it encompasses an educational dimension (Kemmis & McTaggart, 2005). PAR researcher wears many different kinds of hats, and their role transforms from a director to facilitator and catalyst. The researcher provides the targeted group with means to take action by themselves to solve a distinct challenges or design activities within the group (Eriksson & Kovalainen 2008). My personal addition to roles given by Eriksson & Kovalainen is a nanny. As an action researcher, I saw my role as an enabler for education. I many cases design methods are targetted for the designers and the outcome of the design activities were mostly benefitting the designer. During my research, I put as much effort in my own learning outcomes as I did to the participants learning outcomes. And sometimes it meant that I had the role of a nanny so that the participants could take part in the workshop and learn instead of taking care of the baby and participate in half capacity.

Figure 9 Children of the participatns in the Youth Led Innovation workshop in Gulu War Affected Training Centre

As mentioned earlier, PAR is an iterative process which can't be described well trough a sequence of defined steps. It is better described through a spiral of self-reflective cycles (Kemmis & McTaggart, 2005). These self-reflective cycles include *planning, acting, observing and reflecting*. In most cases these cycles overlap and the process is more likely to be driven by the mentality of learning by doing. (Kemmis & McTaggart, 2005)

Kemmis & McTaggart (2005) define seven other key factors of PAR which they consider as important as the self-reflective cycles. These key factors are:

1. PAR is a social process. PAR explores the relationship of the individual and the social.
2. PAR is practical and collaborative. It engages people in exploring their own skills, understanding, and values.
3. PAR is practical a collaborative. It engages people to interact and collaborate and to examine their practices.

4. PAR is emancipatory. It aims to release people from social structures that limit their self-development
5. PAR is critical. It challenges people to consider the social relationships of power, modes of work and language.
6. PAR is reflexive. It aims to help people to investigate reality to be able to change it through a spiral of cycles of self-reflection and self-critical actions.
7. PAR aims to transform both theory and practice, doesn't seek to develop theories that stand above and beyond practice instead it involves reaching in while utilizing standpoints of theories. PAR aims to connect the local and the global.

These guiding principles give a glimpse of the power of participatory action research. The principles guide the work of the researcher and helps to choose the right approach and design the right process. Personally I would add empathy and presence as qualities that I find remarkably important for participatory action researcher especially when working which marginalized or oppressed groups and young people**.** (Kemmis & McTaggart, 2005)

3.2 Acquiring and gathering data

As mentioned earlier, I started to gather data already in 2012 when I was doing the PDP course which is much earlier than the actual study began.

My strategy for the data gathering was to acquire as many insights as possible, discuss with as many people as possible in order to get a holistic view of the subject and the reality of the young people who were targeted in this study. But focusing only on the targeted population would not have given me the overall view of the structures, phenomena, habits and cultures that impact the lives of the young people hence I also interacted with other community members, local, regional, national and international influencers and decision makers to cover those areas as well.

Even though I did not record the early stage data as diligently as I later did, the notes, pictures and short videos have been in very active use during the development of the youth innovation toolkit. Collaboration and participation were also important ways to engage the researched

community during the study and the findings and created hypothesizes were openly discussed and iterated with the stakeholders. After the last visit to Uganda in January 2015, the communications continued via Skype, emails and Facebook.

The primary data used in this thesis:

- field notes and recordings from
    - participatory observations from workshops
    - Semi-structured interviews

The secondary data used:

- photos that visually describe the events and interactions
- drawings and other materials from the workshops

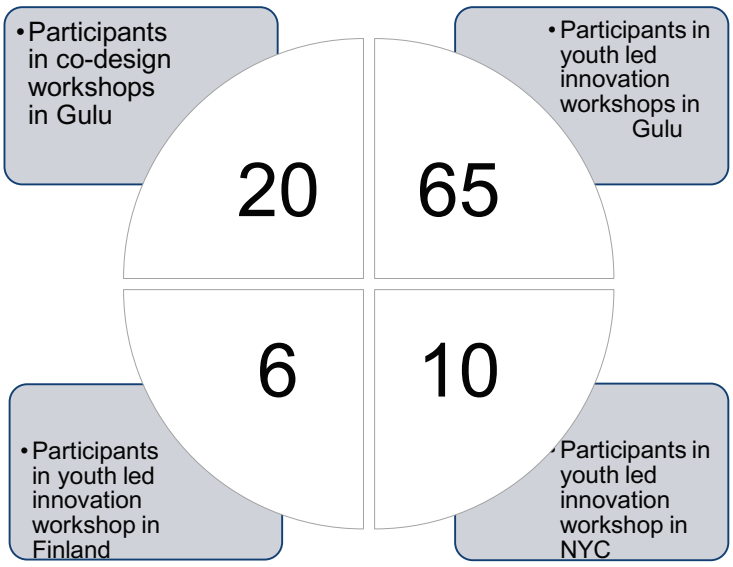
Figure 10 Primary and Secondary School students during Aalto Global Impact summer project

Participatory observations

The data from the participatory observations in this study is a mix of notes in notebooks, short documents on my computer and video recordings.

During this study, I was participating in all the development activities of the Youth Led Innovation program. I organized six workshops mostly in Uganda but also in Finland and New York during my internship at the UNICEF Innovation Unit. My role in the workshops evolved from running to observing the workshops. In the beginning of the study, it was important that I ran the experiments and observed closely the work of both individuals and teams. Otherwise, I would not have gotten such a comprehensive and deep understanding of the process the participants go through during the workshop activities. Later when the program materials were further developed, I entered the observer's role to make the program more natural, meaning that the facilitator was also a local. Stepping out from the facilitator's role allowed me to concentrate entirely on observing, listening and seeing what is actually happening in the teams during the workshops and see the dynamics between the facilitator and the participants.

I documented the workshops in field notes during and after the workshops. Even though I didn't' organize group discussions in three workshops, I gathered feedback, insights and thoughts in a more informal manner after every workshop. Even though the workshops and interviews were the primary sources of the data, much of the data came from short interactions, observations, surprising comments.



Semi-structured interviews

The second source of primary data is the semi-structured interviews which I recorded in the forms of short documents on my computer and video and audio recordings. Interviews were an excellent way to get insights and personal experiences from people who are experts in this field. Due to changes in the travel plans, I managed to organize only two interviews related to this study. I decided to conduct semi-structured interviews, since I didn't want my questions to narrow down the scope of the conversation. I set topics that I wished to cover during the interviews, but did not limit the discussion when it was going towards new and interesting areas. I found this approach most suitable, since I know that the interviewees are the experts of their field so my role was just to ask open questions and allow space for new topics.

The people I interviewed had both worked for many years with adolescent and youth. The other interviewee worked at UNICEF at the youth division and the other one is in a manager position at the Uganda Scouts Association which is one of the biggest youth organization in Uganda. The reason I chose these people was that they both had a lot of experience in working at the grassroots level and implementing projects with communities, but they also were involved in planning in the national level.

Figure 11 Interview with Cleopatra John from Uganda Scouts Association

The interviews were organized at the interviewees´ organization, in order to make the interview situation as natural as possible. The first interview lasted 90 minutes and the second one 60 minutes. Both interviews were recorded and the permission for recording was asked in the beginning of the interview and. Since I knew the interviewees beforehand there was no time needed to build trust and the conversations were really informal and felt relaxed.

Focus group discussion

In addition to the individual interviews, I organized focus group discussions in Finland, New York and the last workshop organized in Uganda. The three group discussions all took place after testing the youth led innovation program. The goals for the discussions were similar: to gather feedback about the Youth Led Innovation program. The group discussions lasted for approximately 30-60 minutes and they were conducted in English and Finnish. Two of the group discussions were recorded and for the third one I wrote the most of the feedback down, also the participants had written down their feedback on the workshop materials.

For the group discussions I used Stanford University d.school's (D.school, 2016) "I like, I wish, what if" -method for gathering feedback. The method has been developed to facilitate group feedback sessions for design teams, but I have found it a useful method to give and gather constructive feedback for prototypes and ideas as well. The method facilitated a broad conversation around the workshop but also gave space for new ideas and reflecting on the experiences from the workshop.

Secondary data: photos

Photos and short videos have been in an important role through this study. They have provided the emotional connection to the context and made the memories more vivid and the research actions more memorable. This strengthened connection has been vital for the researcher who spent most of the time in another continent. For the readers, photos are a way to understand the context and they make the stories more vivid and relatable.

A lot of visual material was produced during the youth led innovation workshops. Some of the materials, papers, worksheets and post-it notes were recorded in photos and some of the

materials were taken to Finland. These materials contained written text and drawings and were used to create more understanding of the visual communication that was used during the workshop. Often the drawings were richer in the communication than the written parts.

Figure 12 Youth from Treasure Life Centre mapping out the compound of their youth center during co-creation workshop (2012)

Ethics of the study

"The closeness to the research partners during participatory projects repeatedly requires ethically sound decisions about the norms and rules that should apply in social dealings among the participants; about how data should be collected, documented, and interpreted in such a way that they do not harm the participants and that their privacy is assured..." (Bergold & Thomas, 2012)

In this quote Bergold & Thomas (2012), talk about ethics in participatory projects. Making ethically sound decisions is especially important while working with vulnerable groups, children, and young people. As discussed earlier, when I started the project with UNICEF, the goal was to work in collaboration children and youth. Already after the first field trip in Gulu in 2011, I felt that the visits were not in balance. I got so much more out of the visits than the schools, teachers and pupils did. This feeling of unbalance was especially strong while visiting health centers. Therefore, I started to pay more attention to the methods and

research approach and strived to develop a way to make the interactions more beneficial both for the researcher and the participants.

When a European person visits a school in Northern Uganda, there will be interruptions in the school's routines, since the visitors will draw attention in the entire school even when only few people are taking part in the research activities. Not everyone can be included in the research activities. There are few challenges that I was facing relating to this dilemma: doing participatory action research but not allowing everyone to participate. Bergold & Thomas (2012) are pointing out a question of which person, or groups of persons should or should not be involved in a research that is conducted together with affected persons, since after all the declared aim of participatory research to harness different types of knowledge?

In the school setting, it was remarkably difficult to engage pupils who are marginalized since usually the teachers chose the pupils that would take part in the activities. After I began to organize workshops outside the schools and was thus able to get more different types of knowledge into the research. I began to collaborate also with different types of organizations. But even when getting a broad variety of people to take part in the research, there is always someone left outside and become disempowered which is the opposite of what Eriksson & Kovalainen (2008b) propose as the effects of participatory action research.

Working with UNICEF gave me a framework for dealing with media and written information. Since UNICEF works with vulnerable groups the organization has developed guidelines on how to cover children and youth in media in an appropriate and sensitive manner (UNICEF, 2016b). When working with schools, we requested for a permission for photos from the headmaster with a form since it would have been impossible to ask for a permission from all the parents of the minors taking part in the research. I was struggling with questions such as" If a person doesn't know what it means to publish a photo on the internet, is it unethical to publish the photo even with permission? These questions were sometimes hindering me from publishing blog posts concerning the research project, but when I did publish, it was helpful to follow UNICEF's guidelines.

4 Analysis, results and discussion

This section introduces the Youth Led Innovation program that has been developed and tested during the research. The program is the main outcome and the result of this thesis project. All the parts of the Youth Led Innovation program are reinvented from existing design toolkits and youth programs. The novelty of the Youth Led Innovation Program lies in how these existing methods and approaches are constructed to serve marginalized communities in their context. It is also aimed to strengthen the capacity of youth organizations who are working in those communities, and to support young people in becoming innovators even in places without interventions outside of the community.

In addition to the analysis of the Youth Led Innovation program, the results also include analysis of five design toolkits that are designed for similar context – under-served communities. These design toolkits are analyzed as a whole, compared to each other, and situated relative to each other on a continuum of required expertise of the organizer and the degree of involvement of the participants. The illustrated results of the analysis help organizations and facilitators to decide which toolkit fits to their needs, environment and level of experience.

4.1 Youth Led Innovation

Youth Led Innovation is a program that provides young people the means to voice their challenges and ideas and supports the emergence of youth-led projects that have a social impact.

The program supports young people to create teams and to find solutions to challenges they face in their own communities as a group. It facilitates community integration, youth empowerment and hands-on activities providing tools and problem-solving skills to take action.

The Youth Led Innovation program contains five steps: 1. Become a Team, 2. Challenge Hunt, 3. Farming Ideas, 4. Build Ideas, 5. Youth-led Action.

Running the whole program takes five working days, but it can be cut into shorter sessions. By cutting the program to 2-hour session, the program can be used as an after-school activity or as a weekly activity for a youth club.

Youth Led Innovations toolkit contains materials for the participants and the facilitator. The facilitator's materials comprise of two parts: the handbook and the guidebook. There is also a playbook for the use of the participants. The materials are accessible in the Youth Led Innovation blog. (see Bakic, 2016)

- the guidebook gives an introduction to the Youth Led Innovation program, process and methods and gives recommendations for organizing the program and advice for how to modify the program for the local context and needs.
- the handbook is used during the program. It contains step-by-step instructions for running the activities, warm-up exercises and tips for overcoming challenges during the activities.

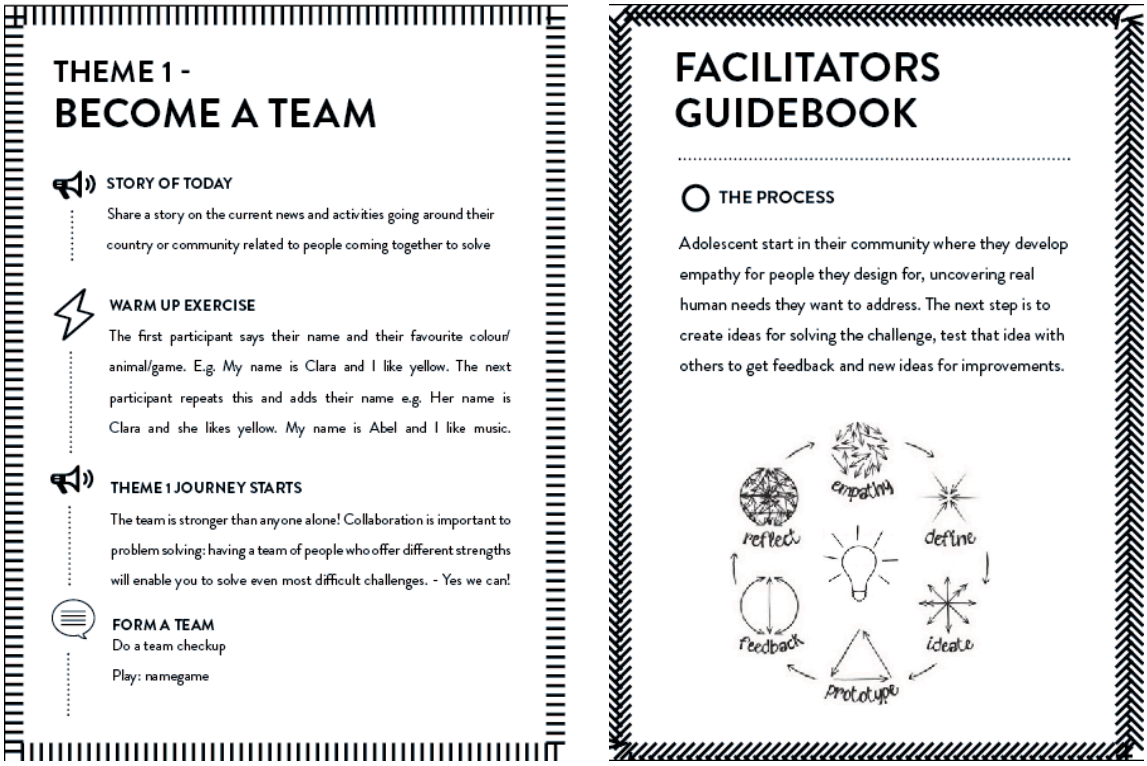


Figure 13 Example pages from the Facilitator's Handbook (on the left) and Guidebook (on the right)

- The playbook is used by the teams during the activities. Each team uses one playbook which contains instructions for all the exercises and space for writing and drawing.

The Playbook helps the teams to work more independently. This makes the work easier for the facilitator. The Playbook also functions as a communication tool for the teams when they communicate about their work with outsiders.

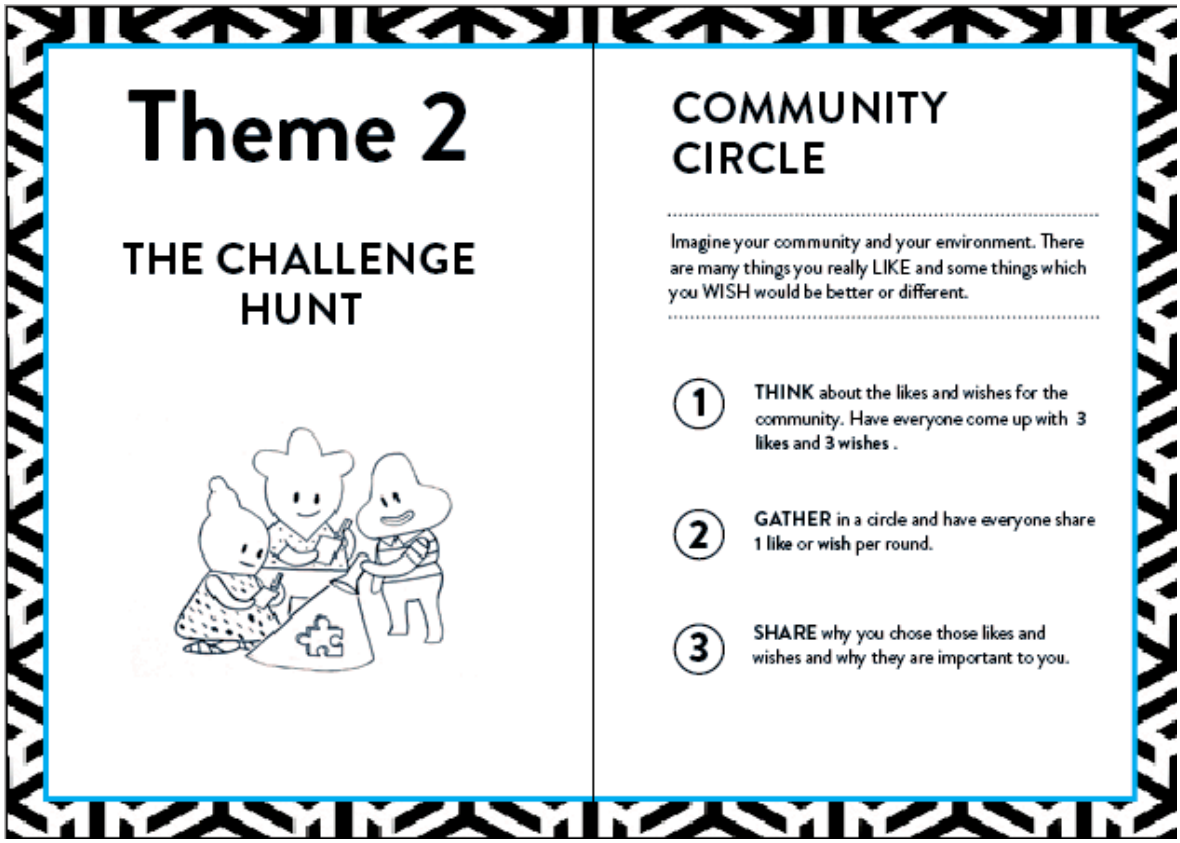


Figure 14 Example page from the Youth Led Innovation Playbook. Illustration by Tom Engström

The Youth Led Innovations program can be organized by anyone, with no previous experience with facilitating design workshops being necessary. This allows a much more sustainable and scalable approach to youth engagement.

4.1.1 Objectives of Youth Led Innovation program

The Youth Led Innovation program teaches design thinking methods that young people can apply in workshops in their community - taking action at a grassroots level where they know the problems intimately but need better thinking tools to come up with solutions.

The program builds a cohesive network of young problem solvers, creates a safe space and atmosphere and acts as a catalyst for learning and experimentation. Youth Led Innovation

provides a platform for adolescent empowerment and strengthens their self-efficacy beliefs in creativity, problem-solving and team-work by meaningful activities in which to participate.

The process that the adolescents undergo during the program equips them with problem solving, team working and communications skills, and helps them to work as a group towards common goals. These skills become momentous in their future as the adolescents are in the crossroad between childhood and the adult world.

4.1.2 Methods

The methods that are used in the program can be put under the design thinking umbrella. These methods are used globally by design companies and innovative organizations.

Most of the methods are borrowed from IDEO HCD- toolkit, Frog Design's Community Action Toolkit and Stanford University's d.school but they are put into an easily approachable form. Those methods include problem identification, ideation, prototyping, feedback, reflection and empathy methods. In addition to these methods, the Youth Led Innovation toolkit also includes storytelling and creative exercises, and uses local resources, stories, and examples.

4.1.3 Stakeholders

Although anyone can organize the Youth Led innovation program, it is designed to be organized in collaboration with different stakeholders such as schools, youth organizations, local NGO's, entrepreneurs, experts from relevant fields. The other stakeholders can take a role of a mentor, expert, advisor and they can be used for giving feedback, user testing or as a connection maker. If the organizer arranges final presentations for the teams, stakeholders can play the important role of an audience that can provide social and encouragement to the youth teams.

4.2 Analysis of the design toolkits

Since this is an interpretative qualitative research, the analysis of the toolkit does not claim to be unbiased. Learning about the toolkits is best done by using them. The Human Centered Toolkit and Collective Action Toolkit were both partially used during the research, and they were also used while creating the Youth Led Innovation program. Although the study did not include using the UPSHIFT and the Adolescent Kit, most of the methods in these two toolkits were familiar with before the research or used during the research.

The analysis is based on the literature review and participatory observation during the workshops. As an inspiration for the representation and illustrations, I am using students course work from "service, innovation and enterprise- course" from Savannah College of Art and Design (Peters et al., 2016).

4.2.1 Polar opposites

The aim of the polar opposites is simply to determine what each toolkit is and what they are not. I chose five components that defined the toolkits the most. After that, I turned them into polar opposite continuum in order to plot and compare each toolkit as a whole and situate them relative to each other correctly.

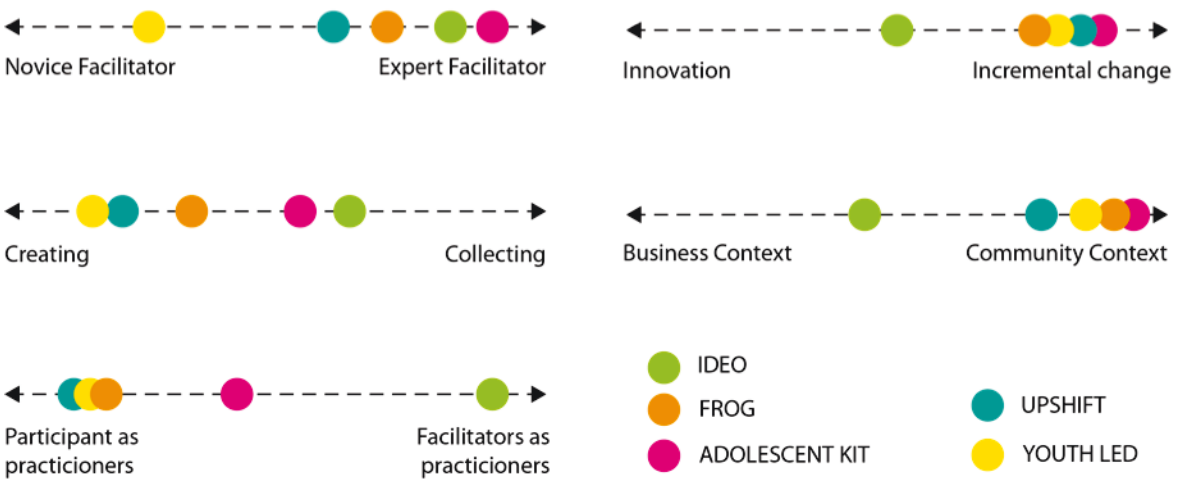
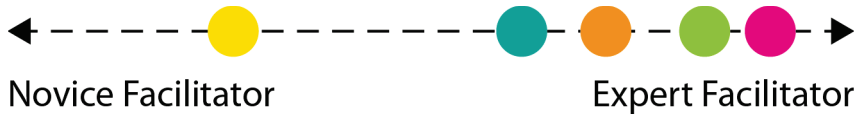


Figure 15 Polar opposites. The polar opposite continuums on the left side explain the intended use of the toolkits and the polar opposite continuums on the right side explain the expected outcomes of using the toolkits.

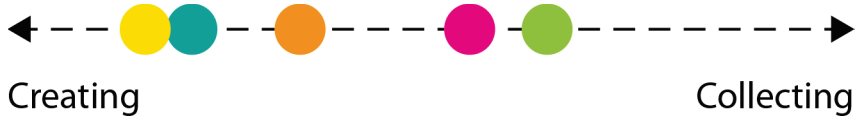
Novice Facilitator – Expert Facilitator



The usability of the design toolkit relies a lot on the level of expertise and prior experience of the facilitator. The Adolescent Kit was located furthest to expert facilitator's end since the toolkit is designed to be used in humanitarian situations where the facilitator needs expertise also in child protection issues. Both IDEO's HCD and Adolescent kit require more dedicated time for understanding the toolkit in a holistic way before the facilitator can design the workshop and put the toolkit in action. Another criterion for this analysis was language. The level of language and expert vocabulary determines the audience of the toolkit. For example, IDEO's HCD Toolkit uses a lot of design thinking language and therefore requires prior experience in design thinking.

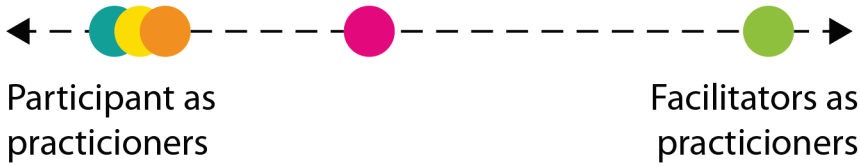
There are also differences in how much background information is given to the facilitator about the methods and process. For example, the Frog's Collective Action Toolkit does not explain the process and methods in details for the facilitator. Due to this feature, the facilitator is required to have prior experience in organizing similar workshops with young people. The Youth Led Innovation toolkit is made suitable for the least experienced facilitator since the participants also get their own toolkit to make the facilitator's job even easier as the teams are capable working in a more independent manner.

Creating - Collecting



For this component, types of activities and methods in each design toolkit were evaluated. The toolkits that are situated towards the end of creating contained more ideation and prototyping methods but also are encouraging the users to iterate during the ideation process. Although the IDEO HCD toolkit contains many creative methods it includes various methods for collecting information.

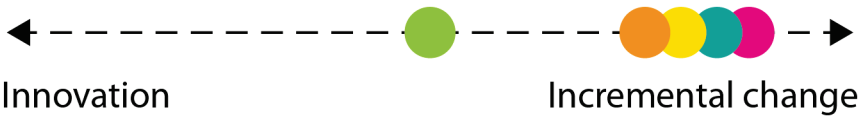
Participant as practitioner – facilitator as practitioner



The biggest difference between the design toolkits is the questions of who is the design practitioner. The purpose of UPSHIFT, Youth Led Innovation, and Frog's Collective Action Toolkit is to facilitate a process where young people are solving local problems with design thinking methods in teams. The facilitator's role in those toolkits is to support the youth teams. The IDEO toolkit is designed for designers, organizations and social enterprises who are using the methods to support their own initiatives, creating new ideas or testing existing ones. The purpose of the toolkit is to help the practitioner to engage with the community and user and thereby create better products and services for them.

In the case of the participant as the practitioner, the young people learn new skills, get to experiment with different roles and get opportunities for participation. In this approach, the design toolkits also contribute to the positive empowerment of the young people.

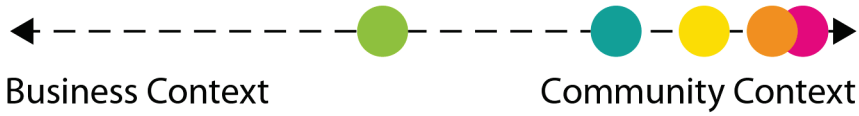
Innovation – Incremental change



Related to the previous component, this component is also connected to the question of who is the practitioner. The reason why Frog, Adolescent kit, UPSHIFT and Youth Led Innovation toolkit's outcomes fall under the incremental change is that they are all more process that product oriented. In other words, the value of the toolkit is to create a process that it teaches skills, ways of working and empowers the participants. In case, the immediate outcomes of the workshop are not great (innovation) but the learning process is successful, the expected outcome is an incremental change where the participants can apply the learnings of the workshop in other situations in the future.

In cases where the facilitator is the practitioner, the outcome is leaning towards innovations since the participating community is not gaining new skills to apply in the future.

Business context – community context



Although, most of these design toolkits are not created for business context, they can be beneficial for companies for creating better services and products and boost entrepreneurship. The IDEO toolkit has been applied in design projects by companies and consultants and the toolkit supports its user to think about the desirability, usability and feasibility of the products that are been created. It also includes many examples of business cases. The UPSHIFT toolkit is also promoting an entrepreneurial mindset but focuses mostly on the impact. However, there is evidence from research that for example in engineering education that enhanced self-efficacy beliefs support entrepreneurial mindset and therefore both UPSHIFT and Youth Led Innovation are not at the far end of the community context.

4.2.2 Toolkit 2X2 matrices

The goal of the 2X2 matrices is to help organizations and facilitators to decide which toolkit is most appropriate for their needs, environment and level of experience. The first matrices illustrate what is expected from the organizer to use the toolkit and what kind of previous experience using the toolkit requires. The second one represents what the organizer can expect while they are using the toolkit concerning the working styles and engagement of the participants. The third one illustrates what can be expected after using the toolkit and what the participants and organizer gain.

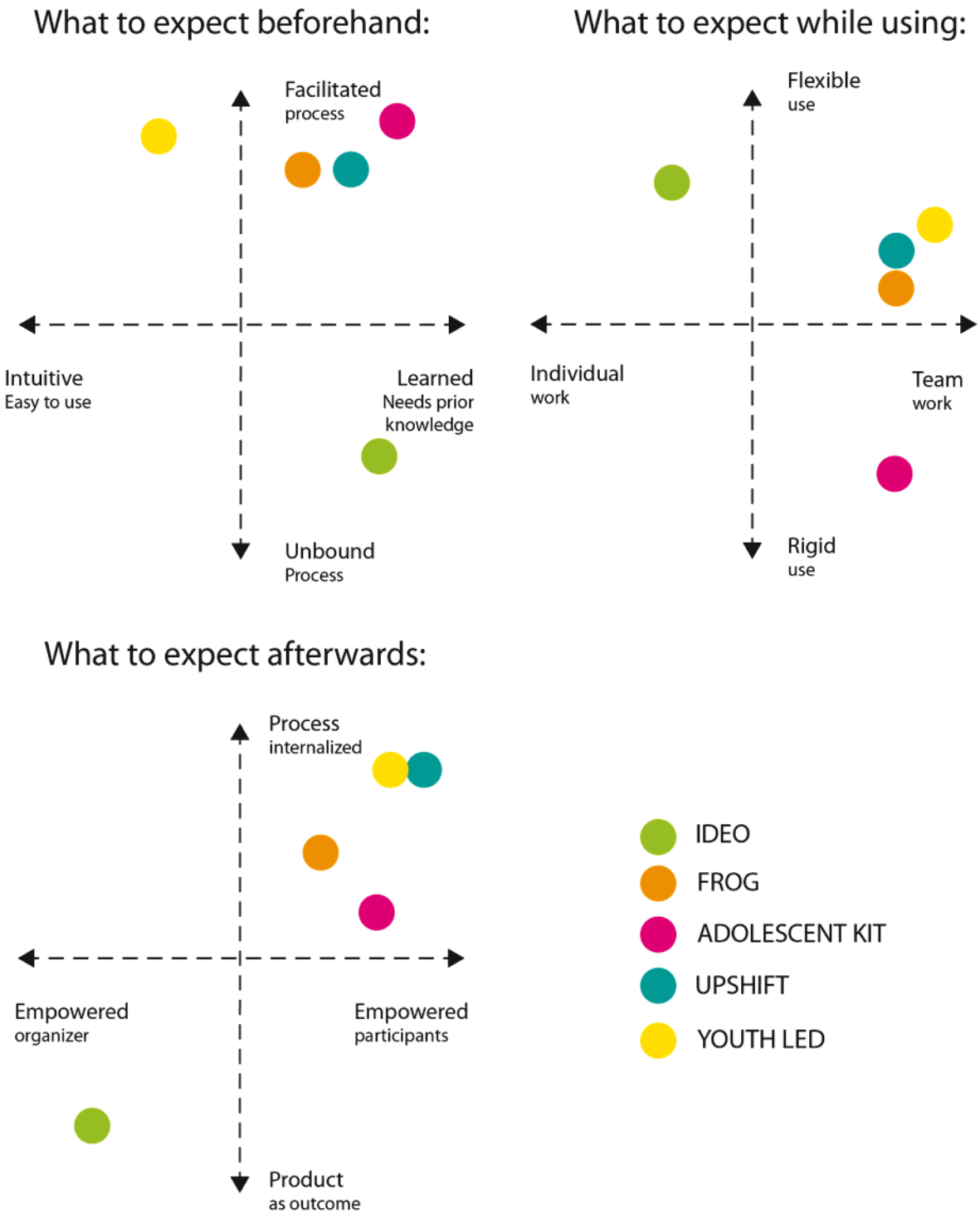


Figure 16 Design toolkit 2X2 matrices that explains what the organizer can expect from using the selected design toolkits

Next I will explain the 2x2 matrices through the Youth Led Innovation program.

What to expect beforehand

Before organizing the Youth Led Innovation program, it is important for the organizer to understand if the program is something that they can to organize by themselves. The x-axis indicates the level of prior experience in organizing workshops with design thinking methods. The *intuitive – easy to use* expresses that there is no need for prior experience for organizing such program and using the toolkit. The other end *Learned – needs prior* knowledge expresses that the organizer needs to be familiar with the methods and language of the toolkit. The y-axis signifies the level of the process provided by the toolkit. The far end of the *Unbound process* expresses that the toolkit contains methods, but no steps and guidance to bind the methods into a coherent process. The other far end of the y-axis the *Facilitated process* that expresses that the toolkit provides a fixed process and guidance for facilitating the entire process from the beginning to the end.

In the case of the Youth Led Innovation program, this 2x2 matrices denotes that the organizer does not need prior experience in organizing such programs, but in this case the facilitator needs prior experience in working with young people and in organizing workshops. The process provided by the program toolkit helps the facilitator to run the whole program and the process. It contains guides for starting each session, warm-up exercises, suggestions for handling challenges during the program and guides to run each exercise and used methods and

What to expect while using

This 2x2 matrices expresses what kind of working styles the toolkit facilitates and how the toolkit fits to different situations. The x-axis simply expresses the level of individual and team work. The y-axis expresses whether the toolkit can be applied to different kind of situations and domains. The far up end of the y-axis *Flexible use* expresses that the toolkit can be applied in various situations and domains and the other end rigid use expresses that the toolkit is created to serve a specific use.

The Youth Led Innovation program is located in the upper right segment of the matrix since it is designed to facilitate team working and the entire program takes place in teams. The

program contains very little individual work. The Youth Led Innovation program is designed for adolescent but it has been tested with youth. The program is designed to be used in community context, but it can be applied to facilitate a problem-solving process for various challenges. During this study, the teams were tackling the challenges related to lack of access to health facilities, poor relationships between communities and police, poor access to training opportunities, sexual violence in the communities and water transportation.

What to expect afterwards

This 2x2 matrix expresses what are the expected outcomes of the program where the design toolkits have been applied. The x-axis expresses the potential of positive empowerment that can take place after the organized program. In the far right end of the axis is *empowered participants*. According to the literature review of this study, there is no "one size fits all" process of psychological empowerment. In this analysis the criteria for empowerment is that the process provides means for participation, the participants acquire skills by taking part in the program, gain faith in their own abilities and that the toolkit facilitates a process for community involvement. In the other end of the x-axis, the organizer is empowered by the program. In this case, the empowered outcome of the program might be a product or a service as they contribute to improving the lives of the user. As presented in chapter 2.4 Hussain (2010) mentions a wheelchair that can enable a child with disabilities to have a more independent lifestyle and a better access to the physical environment.

The y-axis expresses the outcome of the program where the design toolkit has been applied. At the far up of the axis the *Process internalized* expresses the learning aspect of the program. In this case the process is as important or even more important than the end product. In case, if the process is internalized by the participants, it is more likely that they can apply it also later in life in other situations. In the lower part of the y-axis the end result is a product, service or program that is designed during the process.

The Youth Led Innovation program is located in the far upright segment of the matrix. The program is designed in the way that the process is communicated properly in order for the participants to understand why, what and how each step is done and how each step is contributing to the entire process. The process is designed to be iterative and there is space

for reflection. The participants are also encouraged to lead to process instead of being passively led by the facilitator. As mentioned earlier, there is no winning formula for positive empowerment, but this study suggests that the Youth Led Innovation program can support positive empowerment development of the participants.

4.2.3 Categorization of different design toolkits

In this chapter, I will present the categorization of different design toolkits benchmarked during this research. The design toolkits are IDEO Human-Centered Design Toolkit (HCD), Collective Action Toolkit by Frog, UPSHIFT and Adolescent Kit by UNICEF and Youth Led Innovation.

The pros and cons of the toolkits are presented in Table 2 The categorization of the toolkit in this figure has been made from the perspective of user with no or very little prior experience in organizing design workshops

The segmentation grid in Table 3 contains 15 columns of categorized design tools and activities used in the five selected design toolkits.

Table 4 presents which common elements of design thinking the selected design toolkits contain. The categorization of the common elements of design thinking are presented in Table 1. framework explicating the common elements of design thinking, as depicted in the management discourse (Hassi & Laakso 2011).

Pros and Cons of the selected Design Toolkits

IDEO

Pros	Cons
Good tools for building empathy and understanding the context	Requires previous experience of design facilitation in order to use the facilitator notes
Gives examples through cases and how methods have been used	Expects the user to be familiar with methods, language and mental images related to Design Thinking
Shares theory of the used methods	Participatory Co-Design methodology is not highlighted and the users are seen more as a source of information and inspiration instead of contributors for the design
Communicates the journey of the design process	
Is a great basic book that contains the fundamental ideas for applying Human Centered Design methods	
Is translated to multiple languages	

Adolescent Kit

Pros	Cons
Introduces some theory related to adolescent development	Weak visualisation of the processes makes it hard to see the whole picture
Facilitation tips for each session, each step has aim and description	Despite the name the toolkit explains prototyping methods only in few paragraphs. Giving and gathering feedback is not given any structure
Includes guides to plan sessions	Does not put much weight on iterative process of generating ideas and building prototypes
Inspiration cards give quick and easy ways to engage community and available materials	
Takes in consideration the development challenges of the age group	

UPSHIFT

Pros	Cons
Clearly states what kind of prototypes are most suitable for different cases	Does not demand trying more than one type of prototyping
Designed with marginalized youth-as-practitioners in mind	Includes design terms that require previous knowledge with design
Design process is also a learning process. Participants learn the methods instead of just running trough them	Doesn't facilitate the process of the problem identification
Guides to plan the whole program from finding right ways to market the program to judging criteria of the presentations	Usability of the kit is not great yet, since the development of the kit is still under it's way
Provides means to support the continuation of the projects the teams create during the program	Is selective. Only few teams get to experience the whole program.

Youth Led Innovations

Pros	Cons
Provides methods for getting and giving constructive feedback	Doesn't provide alternatives to methods
Designed with marginalized youth-as-practitioners in mind	The process of the program is fixed and at the moment there are no guides provided for modifying the process.
Designed with a facilitator with no prior design experience in mind - the methods and process are explained in a common language	Reaching adolescent is challenging as the program is not yet embedded into any existing program or organization
Contains various creative and energizing exercises to introduce design thinking methods	Does not provide means to support the continuation of the projects the teams create during the program

FROG

Pros	Cons
Includes learning cards for the participants for reflecting their process	Lacks examples to make the exercises more concrete and easier to understand
Includes alternative paths to navigate through the process	Lacks iteration loops of the developed prototypes. Does not encourage to test the prototypes and gather feedback
Each exercise includes illustrations that support running the session.	Requires a lot of additional materials to organize the activities, including camera for filming stories
Facilitates collaborative working styles	Includes too few exercises for team building
Is fairly easy to use and apply in workshops	
Is translated to multiple languages	

Table 2 Pros and Cons of the selected design toolkits

Table 3 Categorized design tools and activities used in the selected design toolkits

Design toolkits	Group activity	Brain-storming	Affini-tizing	contextual research	Journey mapping	stakeholder maps	5 why's	Cultural probes	storytelling	personas	What ifs	Scenarios	Prototyping	co-creation	team work
HCD/ IDEO	x	x	x	x		x	x	x	x			x	x		x
Collective action toolkit	x	x	x	x		x			x	x			x	x	x
The Adolescent Kit	x	x							x				x	x	x
UPSHIFT	x	x	x	x		x	x		x	x	x	x	x	x	x
Youth Led Innovations	x	x	x	x	x	x	x		x	x	x	x	x	x	x

Table 4 Common elements of design thinking in the selected toolkits

	PRACTICES				THINKING STYLES						MINDSET			
	Human-centered approach	Thinking by doing	Visualizing	Collaborative working styles	Divergent + convergent approach	Abductive reasoning	Reflective reframing	Holistic view	Integrative thinking	Experimental & Explorative	Ambiguity tolerant	Optimistic	Future oriented
HCD/IDEO	x	x	x	x	x	x	x	x	x		x	x	x
Collective action toolkit	x	x	x	x	x	x	x	x			x	x	x
The Adolescent Kit	x		x	x								x	x
UPSHIFT	x	x	x	x	x	x	x		x	x	x	x	x
Youth Led Innovations	x	x	x	x	x	x	x			x	x	x	x

5 Conclusions

In this chapter I will sum up the motivation for this research, the main findings and perspectives of this study and discuss the strengths, weaknesses and future views of the Youth Led Innovation program.

The inspiration and motivation for this research came from the interactions with children, adolescent and youth in Uganda during Aalto University's Product Development Project (PDP) course for UNICEF. During those nine months my team tackling the challenge of poor water, sanitation and hygiene in schools in Northern Uganda. Our approach for solving those challenges was to keep the children and youth in the center of the product development process. The children, youth and other stakeholders were participating in the design process from identifying the challenges, ideating solutions, prototyping and testing the prototypes.

After the PDP course I continued working with UNICEF Uganda during a summer project where we organized a three-day Youth Creative Competition for children and adolescent where teams were creating new solutions for water transportation. The most inspiring part of the Youth Creative Competition was the excitement of the participants, the teamwork and great ideas the teams created. It was evident that there is so much untapped potential and unreleased creativity within these young people and I realized that the workshop had created an opportunity to apply that creativity and potential in a meaningful way and offered means for participation in the community. I also came into a conclusion that if the local educators had the right materials that are designed and made for them, they could organize similar activities by themselves, since external human resources should not be needed in Uganda to execute these workshops

When I joined the UNICEF Innovation team in New York in 2013, I learned more about the global work of UNICEF and how the challenges concerning adolescent, their development and participation are integrated to UNICEF's work. I also realized the vulnerability of this group and how the contribution to adolescent development also contributes to the development of children. After the supervisor, the co-founder of the UNICEF Innovation unit Christopher Fabian proposed that I would create a simple, action driven toolkit for the

adolescents that would concentrate in adolescents being the re-builders of their future societies, I decided to start developing a toolkit for youth led innovations.

The main result of this research is the Youth Led Innovation program which was developed in New York and Finland and tested in Finland and Uganda between 2013 and 2016. The literature review and analysis of the program was conducted in Finland in 2015 and 2016.

Next, I will discuss how this study answered the research questions which are:

RQ1. How can we use Design Thinking to empower marginalized adolescent?

RQ2. How does participation in design program contribute to adolescents' skills and ability to respond to the challenges they face in their reality?

This thesis depicts the journey how the Youth Led Innovation program was developed and how the program was tested and developed with adolescent. To cover the question how the research questions were answered in this study, I will base my discussion on the experiences of the action researcher, data analysis and existing research.

5.1 Strengths

The strength of this study is the connection to the real world. The study is based on empirical evidence that was gained through working closely with children, adolescent and youth in Uganda in 2012-2015. The program would not have been possible to develop without the contribution of the participants and organizations and school that were taking part in the workshops. Although the interactions with the young people in Uganda have been the main source of information, feedback and ideas, this study is also based on UNICEF's work both in Uganda and globally and supports UNICEF's ongoing efforts to advocate for the protection of the rights of all children, to help meet their basic needs and to widen their opportunities to reach their full potential.

This study is also based on established theories on design thinking. The strength of this study is that it indicates that the design thinking methods which are generally used successfully by the universities and leading global design agencies can provide meaningful learning opportunities for marginalized youth and provides them skills to tackle local problems and create solutions to them in collaboration with their peers. Furthermore, this study bases on established theories on psychological empowerment. Although this study is not measuring the empowerment, it implies that participation in the Youth Led Innovation program can have a positive impact on the psychological empowerment of adolescents. However, the head of the Gulu War Affected Training Centre explained that after the workshop, the members from a group who tackled the challenge of poor collaboration between the police and the community had started to report crimes more often to the police. The reporting might suggest that during the workshop those youths had developed an understanding of the political system, the role of the police and community and had felt that their voice matters. This might indicate that this group was positively empowered during the workshop.

5.2 Weaknesses

One of the main weaknesses of this study is the fact that the Youth Led Innovation program has not been piloted fully. Despite the successful field testing in Gulu in 2014 there is no research-based evidence of the impact to the positive development of empowerment of the program. In order to answer the research question 1 “How can we use design thinking to empower marginalized youth”, the Youth Led Innovation program should be implemented fully and the implementation should include pre and post assessment of empowerment with the adolescent.

However, the testing gave the empirical evidence of the functionality of the program and the suitability of the methods. When looking at the Youth Led Innovation program through the lenses of the literature review related to psychological empowerment theory, we can predict that the design thinking methods in the context of the program can contribute to positive empowerment of the adolescent as it builds the skills of the participants, provides meaningful ways to participate and connects the youth with their community. On the other hand, the Youth Led Innovation program can also contribute negatively to the empowerment

development of the participants. The potential of positive empowerment through the Youth Led Innovation program depends heavily on the organizer, the facilitator and how the adolescent teams work together. Also, the language and interaction between the facilitator, other participants, and community can be of significant importance. For example, the social persuasion during the program should be encouraging instead of discouraging.

As discussed in the literature review *2.1.4.3 components for psychological empowerment* psychological empowerment depends upon population, context and developmental period. Since the Youth Led Innovation program is contextual, the population, context and the developmental period of the participants are varying, it is not possible to conclude that if the program is contributing to positive empowerment in one context that it will contribute to positive empowerment in other places too. However, the program can have a positive impact in other domains, such as self-esteem, confidence, problem-solving and team working skills even when the impact is not positive empowerment.

5.3 Ways forward

The future views of the program have two aspects: the development of the program and future research. The development of the Youth Led Innovation program should be considered as work in process. Since empowerment is dependent upon population, context and developmental period, the Youth Led Innovation program should be implemented in different countries and groups in order to create ways it could facilitate the different variables and lead to the positive empowerment of the adolescent. Also, the length of the program should be tested. Running the current program takes five full days, which is suitable for some organizations but the suitability of the program for after school activities should be considered as well. One of the organizers of after school activities in Uganda and other countries in the continent is the Girls Education Movement (GEM) (GEM, 2002). Suggestion for the future research also includes the implementation of the program and how the organizers support the continuation of the youth-led projects after the program. The toolkit includes few suggestions for the after program support, but those suggestions have not been tested nor implemented.

Suggestions for future research includes the impact assessment of the program. This includes measuring in which areas the program has an impact. As mentioned earlier, empowerment is one of the potential positive impacts of the program. Other predicted impacts include the development of problem-solving, team working and communications skills, gaining confidence in one's abilities, acquiring skills, gaining recognition, and improved self-esteem. Another area of possible positive impact is the emergence of youth-led projects, services, products, and programs. The program can also contribute to youth-led entrepreneurial activities. The future research would include implementation of the Youth Led Innovation program in selected countries and communities, pre and post program interviews and a longitudinal study to assess the long term impacts of the program.

In this study the theoretical framework included a brief overview of experiential learning, communities of practice and social learning theories. In order to reach a holistic understanding of the educational component of the Youth Led Innovation program the future research should also include further development and research of the learning aspect of the program.

6 Bibliography

ADF. (2016). Aalto Design Factory homepage. Retrieved May 11, 2016, from http://designfactory.aalto.fi

AGI. (2016). Aalto Global Impact. Retrieved May 11, 2016, from http://aaltoglobalimpact.org

Amabile, T. M. (1998). How to kill creativity. *Harvard Business Review*, 77–87.

Bakic, I. (2016). Youth Led Innovation webpage. Retrieved May 19, 2016, from https://drive.google.com/open?id=https://youthledinnovations.wordpress.com

Bandura, A. (1977). Self-efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, *84*(2), 191–215. http://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action : a social cognitive theory / Albert Bandura. Englewood Cliffs, N.J: Prentice-Hall, 1986. xiii, 617 pp.*

Bandura, A. (1997). *Self-efficacy: The excercise of control*. New York: Worth Publishers.

Bergold, J., & Thomas, S. (2012). Participatory Research Methods: A Methodological Approach in Motion. *Forum: Qualitative Sozialforschung/Forum: Qualitative Social Research*, *13*(1), Art. 30. Retrieved from http://nbn-resolving.de/urn:nbn:de0114-fqs1201304

Blackmore, C. (2010). *Social Learning Systems and Communities of Practice*. London: Springer-Verlag London Limited. http://doi.org/10.1007/978-1-84996-133-2_0

Brown, T. (2008). Design Thinking. *Harvard Business Review*, (June), 84–92.

Brown, T., & Martin, R. (2015). Design for action. *Harvard Business Review*, *9*, 57–64.

Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, *8*(2), 5–21. http://doi.org/10.2307/1511637

Chinman, M. J., & Linney, J. A. (1998). Toward a model of adolescent empowerment: Theoretical and empirical evidence. *Journal of Primary Prevention*, *18*(4), 393–413. http://doi.org/10.1023/A:1022691808354

Cooper, R., Junginger, S., & Lockwood, T. (2009). Design thinking and design management: A research and practice perspective. *Design Management Review*, *20*, 46–55. http://doi.org/10.1111/j.1948-7169.2009.00007.x

Cornwall, A., & Jewkes, R. (1995). What is participatory research? *Social Science & Medicine*, *41*(12), 1667–1676. http://doi.org/10.1016/0277-9536(95)00127-s

Cross, N. (2001). Designerly Ways of Knowing: Design Discipline Versus Design Science. *Design Issues*, *17*(3), 49–55. http://doi.org/10.1162/074793601750357196

D.school. (2016). I Like, I Wish, What If - Method. Retrieved April 20, 2016, from http://dschool.stanford.edu/wp-content/themes/dschool/method-cards/i-like-i-wish-what-if.pdf

Denzin, N., & Lincoln, Y. (2005). *The Sage handbook of qualitative research*. *Sage Publications*. Retrieved from http://books.google.com/books?hl=en&lr=&id=X85J8ipMpZEC&oi=fnd&pg=PR9&dq=the+sage+handbook+of+qualitative+research&ots=D2JdP4P2ht&sig=2yyX34kiOQECsXb5-7QtsIU6rq8

DevInfoWorldwide. (2016). DevInfo.

Dewey, J. (1938). Experience and Education. http://doi.org/10.1017/CBO9781107415324.004

Dunne, D., & Martin, R. (2006). Design thinking and how it will change management education: An interview and discussion. *Academy of Management Learning and Education*, *5*(4), 512–523. http://doi.org/10.5465/AMLE.2006.23473212

Eriksson, P., & Kovalainen, A. (2008a). Qualitative Methods in Business Research. *Narrative*, 227–243. http://doi.org/10.4135/9780857028044

Eriksson, P., & Kovalainen, A. (2008b). *Qualitative Methods in Business Research*. London: SAGE Publications Ltd.

Freud, S. (1921). Group psychology and the analysis of the ego. *The Psychoanalytic Quarterly*, *47*(1), 1–23. http://doi.org/10.1097/00005053-192410000-00117

frog. (2016). Collective Action Toolkit. Retrieved May 3, 2016, from http://www.frogdesign.com/work/frog-collective-action-toolkit.html

GEM. (2002). The Girls Education Movement: GEM. Retrieved May 9, 2016, from http://www.unicef.org/southafrica/SAF_girlseducation_gem.pdf

Hassi, L., & Laakso, M. (2011). Conceptions of Design Thinking in the Design and Management Discourses. Open Questions and Possible Directions for Research, 1–10.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, *112*(1), 64–105. http://doi.org/10.1037/0033-2909.112.1.64

Hirschi, T. (2001). *Causes of Delinquency*. London: Transaction Publishers. http://doi.org/978-0-7658-0900-1

Hussain, S. (2010). Empowering marginalised children in developing countries through

participatory design processes. *CoDesign*, *6*(3), 183–183. http://doi.org/10.1080/15710882.2010.511858

Hussain, S., Sanders, E. B. N., & Steinert, M. (2013). Participatory Design with Marginalized People in Developing Countries : Challenges and Opportunities Experienced in a Field Study in Cambodia. *International Journal of Design*, *6*(2), 91–109.

IDEO. (2012). Human cente design toolkit.

Jerkku, M. (2016). *Self-efficacy in new product development teams*. Aalto University School of Business.

Johansson-Sköldberg, U., Woodilla, J., & Çetinkaya, M. (2013). Design thinking: Past, present and possible futures. *Creativity and Innovation Management*, *22*(2), 121–146. http://doi.org/10.1111/caim.12023

Johansson, U., & Woodilla, J. (2010). How to avoid throwing the baby out with the bath water : An ironic perspective on design thinking. *Design*, 1–25.

Keating, J. (2009). Why did one laptop per child fail? Retrieved May 11, 2016, from http://foreignpolicy.com/2009/09/09/why-did-one-laptop-per-child-fail/

Kemmis, S., & McTaggart, R. (2005). *Participatory Action Research. In N.K. Denzin & Y.S. Lincoln, The SAGE Handbook of Qualitative Research*. London: SAGE Publications Ltd.

Kemmis, S., & McTaggart, R. (2007). Participatory action research: Communicative action and the public sphere. *Strategies of Qualitative Inquiry*, 271–330. http://doi.org/10.1080/09650790600975593

Kieffer, C. h. (1984). Citizen empowerment a developmental perspective. *Prevention in Human Services*, *3*(1), 1–7. http://doi.org/10.1300/J293v03n02

Kimbell, L. (2009). Beyond design thinking : Design-as-practice and designs-in-practice. *CRESC Conference*, (May), 1–15. http://doi.org/10.1108/02756660910942454

Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, *4*(2), 193–212. Retrieved from http://wiki.biologyscholars.org/@api/deki/files/2212/=Learning_Styles_and_Learning_Spaces__Enhancing_Experiential_Learning.pdf

Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2000). Experiential Learning Theory: Previous Research and New Directions. *Perspectives on Thinking Learning and*

Cognitive Styles, *1*(216), 227–247. http://doi.org/10.5465/AMLE.2005.17268566

Lawson, B. (2005). How designers think: the design process demystified.

Ledford, M. K., Bronwyn, L., Dairaghi, J., & Ravelli, P. (2013). *Youth Empowerment - the theory and its implementation*. Retrieved from http://www.youthempoweredsolutions.org/wp-content/uploads/2013/11/Youth_Empowerment_The_Theory_and_Its_Implementation_YES-11-13-13.pdf

Lockwood, T. (2009). Frameworks of Design Thinking. *Design Management Journal*, *4*(1), 3. http://doi.org/10.1111/j.1942-5074.2009.00001.x

Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, *3*(5), 551–558. http://doi.org/10.1037/h0023281

Marcia, J. E. (1980). Identity in Adolescence. *Handbook of Adolescent Psychology*, *9*, 159–187. Retrieved from http://egitim.baskent.edu.tr/duyuruek/ip_chalid/marcia_idendity.pdf

Ormrod, J. E. (2008). *Human learning* (5yh ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Pajares, F. (1996). Self-Efficacy Beliefs in Academic Settings. *Review of Educational Research*, *66*(4), 543–578. http://doi.org/10.3102/00346543066004543

Pajares, F. (2006). Self-efficacy during childhood and adolescence. *Self-Efficacy Beliefs of Adolescents*, 339–367.

Paulhus, D. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology*, *44*(6), 1253–1265. http://doi.org/10.1037/0022-3514.44.6.1253

Paulo, F. (2000). *Pedagogy of the oppressed*. Bloomsbury Academic.

Perkins, D., & Zimmerman, M. (1995). Empowerment Theory , Research , and Application. *American Journal of Community Psychology*, *23*(5), 569–579.

Peters, L., Vetel, L., Finklestein, L., & Ekelman, R. (2016). SERV753- Service, Innovation and Enterprise, course assignment. Retrieved February 21, 2016, from http://www.slideshare.net/LouFink/service-design-toolkits

Rappaport, J. (1981). In Praise of Paradox: A Social Policy of Empowerment Over Prevention. *American Journal of Community Psychology*, *1*.

Rappaport, J. (1984). Studies in Empowerment: Introduction to the Issue. *Prevention in Human Services*, *3*(1), 1–7. http://doi.org/10.1300/J293v03n02

Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American Journal of Community Psychology*, *15*(2), 121–148. http://doi.org/10.1007/BF00919275

Sanders, E. B.-N., Brandt, E., & Binder, T. (2010). A framework for organizing the tools and techniques of participatory design. *Proceedings of the 11th Biennial Participatory Design Conference on - PDC '10*, 195. http://doi.org/10.1145/1900441.1900476

Sanoff, H. (2007). Special issue on participatory design. *Design Studies*, *28*(3), 213–215. http://doi.org/10.1016/j.destud.2007.02.001

Schunk, D. H., & Meece, J. L. (2006). Self-efficacy development in adolescence. *Self-Efficacy Beliefs of Adolescents*, 71–96. Retrieved from <Go to ISI>://CCC:000183711700002

Simon, H. A. (1969). *The Sciences of the Artificial*. *Cambridge, MA* (Vol. 1). http://doi.org/10.1016/S0898-1221(97)82941-0

Stacey, R. D., Griffin, D., & Shaw, P. (2000). *Complexity and Management*. London: Routledge. Retrieved from https://books.google.fi/books?id=F46BAgAAQBAJ&pg=PR6&lpg=PR6&dq=ISBN+0?415?24760?8&source=bl&ots=AJ8GKy3oUE&sig=oDF6KgIk6KH4Ff9WYNxizHULcUk&hl=fi&sa=X&ved=0ahUKEwiay7ic0dLMAhVC2SwKHegqCoAQ6AEIGTAA#v=onepage&q=ISBN 0?415?24760?8&f=false

Strecher, V. J., Devellis, B. M., Becker, M. H., & Rosenstock, I. M. (1986). The Role of Self-Efficacy in Achieving Behavior Change Health. *Health Education Quaterly*, *vol, 13*(1), 73–91.

Taajamaa, V. (2016). *Design Thinking in Engineering Education*. University of Turku.

UNICEF. (2011). *State of the world's children 2011*. *State of the world's children*. Retrieved from http://www.unicef.org/adolescence/files/SOWC_2011_Main_Report_EN_02092011.pdf

UNICEF. (2014). The Adolescent Kit for expression and innovation. Retrieved March 3, 2016, from http://adolescentkit.org

UNICEF. (2015). Principles for Innovation and Technology in Development. Retrieved December 1, 2015, from http://www.unicefstories.org/principles/

UNICEF. (2016a). UNICEF Data: Monitoring the Situation of Children and Women. Retrieved April 27, 2016, from http://data.unicef.org/countries/UGA.html

UNICEF. (2016b). UNICEF reporting guidelines. Retrieved April 26, 2016, from http://www.unicef.org/esaro/5440_ethical_reporting_guidelines.html

Wenger, E. (2000). Communities of Practice and Social Learning Systems. *Organization*, *7*(2), 225–246. http://doi.org/10.1177/135050840072002

WHO. (2016). Adolescence: a period needing special attention. Retrieved May 5, 2015, from http://apps.who.int/adolescent/second-decade/section2/page1/recognizing-adolescence.html

Worldbank. (2016). Pupil-teacher ration in primary education. Retrieved May 11, 2016, from http://data.worldbank.org/indicator/SE.PRM.ENRL.TC.ZS

Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process management. *Academy of Management Journal*, *53*(1), 107–128.

Zimmerman, M. (1995). Psychological Empowerment: Issue and Illustrations. *American Journal of Community Psychology*, *5*, 581.

Zimmerman, M. (2000). Empowerment Theory: Psychological, Organizational and Community Levels of Analysis. In *Handbook of community psychology* (pp. 43–63). http://doi.org/10.1007/978-1-4615-4193-6_2

Zimmerman, M. a, & Rappaport, J. (1988). Citizen participation, perceived control, and psychological empowerment. *American Journal of Community Psychology*, *16*(5), 725–50. http://doi.org/10.1007/BF00930023

Zimmerman, M. a. (1990a). Taking aim on empowerment research: On the distinction between individual and psychological conceptions. *American Journal of Community Psychology*, *18*(1), 169–177. http://doi.org/10.1007/BF00922695

Zimmerman, M. a. (1990b). Toward a theory of learned hopefulness: A structural model analysis of participation and empowerment. *Journal of Research in Personality*, *24*(1), 71–86. http://doi.org/10.1016/0092-6566(90)90007-S

Zimmerman, M., Israel, B., Schulz, A., & Checkoway, B. (1992). Further explorations in empowerment theory: An empirical analysis of psychological empowerment. *American Journal of Community Psychology*, *20*(6), 707–727. Retrieved from http://link.springer.com/article/10.1007/BF01312604

Zucker, D. (2015). How can we motivate youth to be agents of social change? Retrieved from http://www.unicefstories.org/2015/03/29/how-do-we-motivate-youth-to-be-agents-of-social-change/

7 Appendix I Youth Led Innovation program structure

1. BECOME A TEAM	
Form a Team	Participants form teams and draw a team photo
Our Team	Teams create a team identity and logo
Teach and Play	Team members teach each other games
Our Community	Teams map out their community
Skills & Superpowers	Participants identify and embrace their skills and super powers
Expectations	Team members discuss their expectations for the program
Our Team, Our Rules	Teams discuss about good practices in teamwork and create their own rules
2. CHALLENGE HUNT	
Community Circle	Participants share things they LIKE and things they WISH would be better or different in their community
We Like, We Wish	Teams discuss the similarities and differences of their likes and wishes
Vote for the wish	Teams vote for the WISH they want to work towards to
Define the wish	Teams create a statement to define the need, user and vision
5 times Why	Teams turn the WISH into a problem statement and create a deeper understanding of the problem they are solving
What We Know	Teams find out what they know about the problem and what information they are missing
Find Missing Parts	Teams find out where and from whom they can find the missing information
Interview	Participants learn about doing interviews and create interview questions
Observe	Participants learn about observing and revisit their community map to identify good spots for observing
Adventure time	Teams prepare for the interviews and do a rehearsal on the interview situation
Sharing findings	observations

Themes & connections	Teams organize their findings into themes and identify connections
Create a persona	Teams create a persona that represents the person who's problems they are solving
3. FARMING IDEAS	
How Might We?	Teams create How Might We question to support idea generation
Yes, and – yes, but	Participants practice communication skills for idea generation
Brainstorming	Teams learn about idea generation and create a great amount of ideas
Emerging ideas	Teams create new ideas by emerging existing ideas together
Mixing ideas	Teams borrow ideas from other teams and combine them with their own ideas
Vote	Team members vote for the top 3 most important ideas. 3 are selected
Create a cartoon	Teams create 3 sub teams and create cartoons of each idea and vote for their best idea.
I like, What if	Teams present their idea cartoon and give constructive feedback to others.
Grow your ideas	Teams learn from their feedback and develop their idea further
Draw your final idea	Teams create a visual representation of their final idea and frame their idea in few sentences
Finding Materials	Facilitator gives the participants a home assignment to find materials for prototyping
4. BUILD IDEAS	
Storytelling	Teams narrate their idea through a story which they will also draw
Role play	Teams create a 5-minute play of their story, practice it and present to other teams
Plan to build	Teams plan how to create a physical representation of their idea**.**
Build it	Teams build the prototype form the available materials
Test Your Prototype	Each team creates a pitch, practice and present it to the other teams

Gather feedback	Teams give constructive feedback to the other teams.
Grow Your prototype	Teams learn from their feedback and develop their prototype
5. YOUTH-LED ACTION	
Human Connections	The teams identify how their idea is connected into their community
Ripple effect	Teams discover who their idea is impacting in their community
Find your goal	Teams agree on goals they want to achieve as a group
Find the hurdles	Teams identify what kind of barriers stand between them and the goal
Action Plan	Teams identify 3 big steps to achieve the goal and discuss what each step includes
Find the resources	Each team identify what resources are needed to achieve the goal and discuss how to find them
The Dream Team	Teams revisit their action plan and skills and superpowers and assign areas of responsibilities for everyone